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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

EDITED BY

G. F. STOUT,

WITH THE CO-OPERATION OF PROFESSOR H. SIDGWICK, DR. E. CAIRD, DR. VENN, PROFESSOR WARD, AND PROFESSOR TITCHENER.

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[1] To be concluded in vol. ix., No. 33 (January, 1900).

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OF

PSYCHOLOGY AND PHILOSOPHY.

I.—PHILOSOPHY AND THE STUDY OF PHILOSOPHERS.[1]

By D. G. Ritchie.

Those who are engaged in the study of metaphysical philosophy often find themselves criticised by those who are working at the special sciences on the ground that, while the special sciences are continually adding to the sum of human knowledge and to man's power over nature, metaphysical philosophy makes no progress, but consists merely in a chaos of rival and contradictory speculations. And it is sometimes said that a clear proof of the barrenness of the pursuit is to be found in the attention devoted to the philosophers of the past, and even of a very remote past. The student of chemistry or biology is referred to the latest text-books; the student of metaphysics is sent back to Locke and Kant, to Descartes and Spinoza, or even to Plato and Aristotle. Some great scientific workers have themselves been imbued with the taste or passion for philosophy, and, like Huxley for instance, have been able to appreciate both the scientific and the philosophical work of Descartes or Aristotle. Some scientific men also recognise that in their own special departments a study of the history of scientific ideas is not an altogether irrelevant part of their work. Still it remains true, that the average scientific specialist feels convinced, or speaks as if he were convinced, of the futility of metaphysics, and regards the history of metaphysical variations and our occupation with it as a confirmation of his sceptical attitude.

[1] Presidential address delivered to the Aristotelian Society, 4th November, 1898.

Even those who are themselves busied with philosophical studies at times feel a certain doubt about their own position. The uncomfortable suspicion suggests itself that the great amount of writing and discussion actually going on upon philosophical subjects may perhaps after all be no real proof of the vitality of metaphysics; for a very large and, as some may think, the most interesting and most valuable part of it is concerned with the careful exposition and criticism of the great philosophers. Philosophy, especially in Germany, long the chosen home of metaphysics, appears to have become very largely the study of its own history. The age of creation seems at an end, and our days have fallen in an "Alexandrian" period of commentators and critics. The biography of metaphysics is being so minutely written that we begin to fear that metaphysics itself must be dead, and that what we are studying and elaborating so anxiously is but a long and not altogether favourable obituary notice.

With such objections and doubts I propose to deal at present by asking two questions: (1) May not the nature of philosophy itself render inevitable this perpetual recurrence to the thought of the past? and (2) may there not be special reasons in our own age why this historical interest should be predominant? These questions are not new, and I do not profess to have anything very new to say upon them; but they seem to me to be worth discussing afresh in a philosophical society which devotes no small part of its time to the study of past philosophy, and which by its very name professes a permanent debt to him whom several centuries called "the philosopher".

I do not think it accurate to describe the progress of the special sciences as consisting in a continuous accumulation of facts. An accumulation of facts is never science, but only the materials for science. Progress in the sciences consists in the substitution of more adequate concepts or categories for those by which we have hitherto attempted to unify and make intelligible to ourselves some parts or aspects of our experience. New facts are, indeed, the occasion for framing new concepts, and new concepts aid in the discovery of new facts; but the accumulation of facts is not what is essential in scientific progress. To take a simple illustration, the fact that the sun is seen on one side of the sky in the morning and on the other side in the evening can be explained by the movement of the sun over the earth—the theory which we all use in our "common-sense" thinking and when we speak of "sunrise" and "sunset". The fact has been explained more adequately by the revolution of the earth on

its axis. So again, while the Darwinian theory of natural selection has incidentally led to the observation of many previously unnoticed facts about plants and animals, the theory itself is not an addition to our sum of facts but the substitution of a new definition of "species" for an old one. Indeed the old type of naturalist often collected many more facts (and specimens) than the new biologist, but his facts lay simply alongside of one another and were not held together by a continuous thread of theory.

Now, if the sciences, being, in Mr. Herbert Spencer's phrase, "partially unified knowledge," have their history marked by changes in their unifying concepts, much more must this be the case with philosophy, which attempts to reach complete unification of knowledge—I say "attempts to reach," for, just as Pythagoras took "lover of wisdom" and not "wise" for his title, so must we define philosophy, not as "completely unified knowledge," but as the effort or endeavour to reach it. A new fact may upset an accepted scientific theory; but not merely every new fact and every new event in the physical universe, but every new scientific theory (being a new event in the region of mind) is a new fact for philosophy, and the unifying and systematising concepts of philosophy must therefore be constantly subject to revision and modification. The main occupation of philosophy comes therefore to be the examination of those concepts that serve well enough for the provisional and very partial unifications of ordinary life, and of those concepts that serve well enough for the unification of the special sciences which deal with particular aspects of the world taken in abstraction from one another. Philosophy must primarily and at least be "a criticism of categories". The criticism consists in seeking to discover the relations of the various concepts, which are used uncritically in ordinary and in scientific thinking, to the ultimate data of experience (and what these are it is of course the concern of philosophy to discover, for common-sense and even the special sciences are alike content to accept as facts what are really unanalysed and unconscious theories); but beyond this primary task of philosophical criticism, it must, in the very effort to be thoroughgoing, proceed to consider the relation of these fundamental concepts to one another, and in doing this even a professedly critical philosophy must to some extent become constructive and speculative.

If we define philosophy (or metaphysics) as the theory of reality and its method as the analysis of experience, I do not think this can bring us to a conception of philosophy and of

its relation to the special sciences different from that which I have just adopted. The reality which philosophy attempts to understand must be *reality as a whole, but as knowable by us.* With the genuinely "unknowable" we can have nothing to do, and it is waste of words to talk about it. The reality we deal with must mean the same thing as experience—"experience," however, being taken in its very widest sense. Each of the special sciences takes up some aspect of reality. Each of them, therefore, deals with abstractions of varying degrees of abstractness and not with the whole concrete fact. It is with the totality, with the concrete, complex whole that philosophy attempts to deal. If we consider psychology as one of the special sciences, we must nevertheless recognise that it divides the field of experience with the other sciences in a different way from that in which they divide it between themselves. They are each concerned with some aspect of the content of experience, some with more abstract, others with less abstract, aspects; but all, even the least abstract of them, *e.g.*, biology and sociology, leave out of consideration the fact that no reality exists for us at all save as an actual or possible object of consciousness. Psychology, on the other hand, makes the opposite abstraction. It is concerned with experience only on its subjective side, with the mental process as such, and is not directly concerned with this or that aspect of the content. Now, philosophy as the attempt to understand experience as a whole, to get at "the truth, the whole truth, and nothing but the truth," must inevitably take up an attitude of criticism towards the concepts which the various special sciences, including psychology, use in dealing with their problems. The thinking of experience as a whole remains the ideal for philosophy, an ideal which to different persons may seem more or less attainable; but the task which all philosophers must accept includes at least the criticism of the concepts used in the sciences and in ordinary thinking. The question which Kant came to formulate explicitly as the problem of what he called "Transcendental Logic," "How is knowledge possible?" is a question with which every serious philosophy deals in some way or other, however much the particular form and the particular results of the Kantian criticism be ignored or rejected or superseded. Only the thoroughgoing sceptic gives up the problem of how knowledge is possible, and in giving up this, he gives up metaphysics altogether and cultivates some other intellectual garden as best he may. Empiricists and idealists alike have their answer to the question, more or less dogmatic. They have some account to give of the concepts, such as thing

and quality, cause and effect, matter and mind, by the help of which the obscure chaos of uninterpreted sensation or feeling is arranged into the more or less orderly world of ordinary and scientific belief. Our ordinary or common-sense knowledge is full of tacit assumptions and presuppositions, some of which are retained, while others are discarded, by the special sciences. However much we try to avoid assumptions in speaking about the facts of consciousness, we cannot do so. The language we have received as part of our social inheritance is full of *idola fori*, and (unless we are barbarians) of *idola theatri* also. No avoidance of metaphysics, but only serious metaphysical effort enables us to detect these assumptions. "Enough metaphysics to get rid of metaphysical ideas" means in truth a very thorough metaphysical training, and, not merely a great deal of logical acuteness in unravelling complex concepts lurking under apparently simple words, but a knowledge of the history of thought in the past which has gone to form the intellectual ground on which we are standing, the intellectual atmosphere we breathe. If geology and chemical analysis have a scientific interest, apart from the practical benefits they may bring to the health and the wealth of nations, the study of the ideas of the past which have gone to mould our language and our beliefs has as great, if not a greater, intellectual interest and may have a very important, even though indirect, influence on the life of society, especially in the spheres of politics and religion, where unconscious and therefore uncriticised metaphysics is apt to cause serious mischief.

Undoubtedly there is a great attractiveness in the seeming freedom from the burden of historical tradition and from the dusty toil of historical research with which some philosophers, and among them some of the greatest, have attacked directly and single-handed the problems of knowledge and reality. Why, it may be urged, should we not always discuss our questions at first hand, with the freshness of a Socratic dialogue, instead of cumbering ourselves with the opinions of our predecessors, as Aristotle does in his *Metaphysics*, the book in which philosophy seems to lose its primitive direct outlook on experience and to begin to stiffen into scholasticism? Undoubtedly a great deal of the prevalent historical interest in philosophers of the past is not properly interest in philosophy; the two interests may even sometimes, as Green said, be in the inverse ratio.[1] Much of the study of Plato

[1] *Cf.* his edition of *Hume*, vol. i., p. 4 ("General Introduction," § 4). I suppose he was thinking primarily of G. H. Lewes' biographical *History*.

and Aristotle is scholarship. Much of the minute study of Kant has been correctly called "*Kantphilologie*". The humanist tradition in education, which has thrown a charm round the art and the literature and the life of periods that seem unprofitable subjects of study to those immersed in practical business or in the sciences that are directly connected with the things of industry and commerce—this humanist tradition is undoubtedly a chief support of the study of the old philosophers.

Apart, however, from any side interest in such a study, there are sufficiently strong reasons for it in the nature of philosophy itself. Bacon and Descartes, Locke and Kant, each in his turn, thought that he had shaken off the fetters of the past. Yet each in different degrees and ways shows that the ideas of the past do not bind us by mere external fetters, but have grown into the very structure of our minds. Bacon urges the study of facts without the assumption of philosophical theories; but his whole thinking about nature is pervaded by the assumption of the atomist doctrine, which, though unacknowledged, lies at the basis of his, as of most popular philosophy. Descartes, a far greater and more original philosophical thinker, succeeds in clearing his mind more completely of traditional concepts; and yet even he cannot escape from the system against which he rebels, and he fails to escape just because he turns away from the study and criticism of older theories. No sooner has he reached his solid basis, the one indubitable fact of self-consciousness, on which to rebuild the fabric of philosophy, than the scholastic notion of substance slips unrecognised into his thinking; and the self, the *ego*, becomes "a substance that thinks" set over against the substance that is extended. The dualism of popular philosophy, inherited from scholasticism and indirectly from Platonism, is exaggerated and stiffened in the philosophy which professed to start clear of all assumptions. Locke, who in his turn seeks to make an absolutely fresh start and to interrogate consciousness for himself, retains this same notion of substance, though he is clearly puzzled by its strange emptiness of meaning. What is still more significant, Locke like Bacon assumes the passivity of mind. It is a mirror or a blank sheet of paper on which things produce more or less perfect copies of themselves. Plato and Aristotle had used this picture of the writing tablet, but had used it in a more careful and conscious way, and a study of their psychology might have made Locke more cautious in his dealings with the metaphors of mental "images" and "impressions". Even Kant, who to escape the difficulties

in which Hume's clear-sightedness had placed Locke's empiricism, makes his "Copernican" change and tries the hypothesis of mind acting upon the material given to it—even Kant thinks he is introducing an absolutely new method into philosophy. Like Locke, though in a less degree, he tends to ignore his predecessors; and as a consequence he carries over into his theory of knowledge the mysterious "thing-in-itself," which seems to be a mixture of the scholastic "substance" with the Leibnizian "monad". He accepts, moreover, an absolute division between the intelligible and the phenomenal world, which is an inheritance from the Platonic doctrine that Aristotle had criticised in the *Metaphysics*, and that Plato himself had criticised in the *Parmenides*. I do not mean that the thought of the world would necessarily have gained if Bacon and Descartes, Locke and Kant, had devoted themselves to writing commentaries on Aristotle. There are times when a violent revolution seems to be needed in order to effect a reform, whether in thought or in politics or in religion; and the revolutionary leader cannot be expected to be always just to the past or to see his own work in correct historical perspective. I have referred to these four revolutionary thinkers simply as illustrations, to show how difficult or impossible it is to escape the *idola theatri*, while attempting to give an account of experience without a clear and explicit consciousness of the history of the metaphysical ideas which have become embedded like fossils in the language of ordinary life and the habits of ordinary thinking.

We may distinguish three main attitudes towards the doctrines of older philosophers. First, there is the attitude of submission to authority. Of this the most fully developed example is to be found in Scholasticism; but it was a habit of thought which had already shown itself in pre-Christian times in the Alexandrian period and even earlier. The reverence for the written word which contains the doctrine of the great teacher leads even the most gifted and original thinkers to put their ideas in the form of commentary on the sayings of the master. Discussion, however much freedom it may actually attain, takes the guise of rival interpretations of the same authority or of disagreement in the weight assigned to different authorities or to different elements of the same doctrine. It is a manner of philosophical discussion which is apt to arise wherever famous names have won a widespread veneration. Plato makes Socrates use it ironically when, instead of frankly asserting that Simonides the poet (and these old poets were the Greek "Bible") was

wrong in his opinion, he argues that the saying of Simonides must be otherwise interpreted or that the saying was wrongly ascribed to Simonides.[1] The same habit exists among ourselves, practised in all seriousness and not only with reference to the Bible. The discussion between sensationalist and intellectualist has sometimes taken the form of different interpretations of Locke, especially where Locke's *Essay* has become the traditional student's book. Idealist and realist, intuitionalist and positivist have each been anxious to invoke the name of Kant; and opposing parties have sheltered themselves under the broad shadow of Hegel, distinguished as Right and Left and Centre, like the groups in a French Chamber of Deputies. Even those who protest against a dominant authoritative system often do so in the guise of a return to some favoured doctrine of the past. "Back to Kant" is one form of the revolt against the post-Kantian idealists.

The second attitude is that to which I have already referred as represented by Bacon and Descartes—revolt against authority, assertion of individual independence in thinking. Earlier philosophies are regarded as false. They are systems to be thrown aside. If they are dealt with, it is only that they may be refuted. But if they are dealt with at all, distinctions have soon to be made. They are not all false in the same degree. Bacon, *e.g.*, has a kindlier feeling for the older Greek philosophers, "*quorum scripta perierunt*," [2] than for Plato and Aristotle, whose works have floated down on the stream of time to encumber the intellectual powers of mankind. If some of the ideas of older philosophers are less to be condemned, they receive a certain relative approval. And so this attitude of protest and revolt can only maintain itself as a purely negative attitude towards the past by ignoring the study of it altogether. When such study asserts itself, as it is sure to do wherever humanist studies are not altogether supplanted by the mathematical and natural sciences, the negative attitude must give way to a recognition that the philosophical thinking of the past was a preparation for the better philosophy of the present. A Comtist history of philosophy is indeed only a history of successive and conflicting forms of error; but these systems which are refuted one after the other are regarded as preparing the way for the clear-sighted, disillusioned positivism which has learnt to escape the metaphysical, as well as the theological, stage of thought. As we have seen, however, the metaphysical stage

[1] *Cf. Republic*, i., 331-335. [2] *Cf. Novum Organum*, Praefatio.

can be escaped by no one except through the careful study of the growth of metaphysical concepts. We must trace the antecedents of our own ideas in the thought of the past in order to guard against the fallacies due to false philosophical systems. But to see the falsehood of a system clearly we must seek to understand it fully ; and we can only do so by studying it in the light of the social and intellectual environment in which it arose. When we do that, however, we begin to recognise in it a certain relative truth and value. A doctrine which is false, if accepted blindly and upon authority in our age, and which is easily refuted if judged by our canons of scientific criticism, is seen to have been in many respects sound and valid when taken in relation to the time and circumstances of its origin. We may not be prepared to accept the scholastic philosophy of St. Thomas Aquinas as the final word for us ; but we may recognise its great worth as an expression of the central ideas of the thirteenth century by a man of much shrewdness, common-sense and moderation. We cannot be Cartesians or Leibnizians now-a-days, and yet we may acknowledge the great debt of modern thought to Descartes and Leibniz more easily than was possible in last century, when Cartesianism and Wolfianism had become new scholastic systems in those universities where mediæval Aristotelianism had been supplanted. But, if we have reached this appreciative manner of regarding the great systems of a sufficiently remote past, we have surely got beyond the stage of looking on them simply as errors and the parents of errors against which we have to be on our guard. When the religious or the philosophical systems of the past are studied in what we have come to consider "the historical spirit," when criticism passes from merely refuting opinions to showing how and why these opinions came to be held, above all when the conception of development or evolution is extended from the natural world to the world of human thought, we have left behind the purely negative attitude to ideas that we no longer accept, and we come to see the long series of attempts to grapple with the central problems of knowledge and reality not as stray opinions with which we do not happen to agree, but as parts of one continuous movement in which our own thinking is itself included. The development of ideas is, indeed, in some respects more intricate and difficult to trace than development in the organic sphere. The genealogy of ideas (as of institutions) is more complex than that of animal or vegetable species. Still the leading threads can generally be detected: and just because we are dealing with expressly

formulated ideas, the development of philosophical systems often gives the clearest indication of the relation in which successive stages of society stand to one another. In other words, the history of philosophy may often serve as a clue to guide us in the attempt to reach a philosophy of history. Plato and Aristotle help us to understand the Hellenic world, Thomas Aquinas to understand the middle ages and their relation to the ancient world, Descartes to understand the period of the Reformation, and so on.

It may be most convenient to discuss this third attitude towards the philosophers of the past—an attitude which I think is coming to be more and more adopted at the present day—in connection with the views of Hegel, who gave to it its most prominent expression and who may seem to many to have exaggerated it into falsehood. Every philosophy, Hegel admits, has been refuted. The very fact that a philosophy was the philosophy of some past age proves that it cannot be the truest system for a succeeding age. But it is also true that no philosophy has ever been refuted. "Every philosophy has been and still is necessary." There is but one philosophy manifesting itself in the succession of philosophical systems. The history of philosophy is thus an integral part of philosophy itself. It is philosophy taking its time.[1]

What is usually quoted from Hegel is his saying that the sequence of philosophical systems is the same as that of the sequence of the categories in his *Logic;* and this is commonly supposed to be a dictum which refutes itself by its absurdity and preposterous conceit. And the dictum is contemptuously put aside even by historians of philosophy who have learnt Hegel's lesson very fully. Let us see first what Hegel really said and what he meant. Now what he says in his *Lectures on the History of Philosophy*[2] is that "on the whole (*im Ganzen*) the sequence of the philosophical systems is similar to the sequence of the categories". And again in one of the *Zusätze* to the *Encyklopædie*, § 86, he says: "the relation of the earlier to the later systems is in general (*im Allgemeinen*) much like the relation of the earlier to the later stages of the logical Idea, and is of this kind that the later contain the earlier sublated (*aufgehoben*, taken up, annulled and absorbed) in them". Hegel does not assert this as if he had got hold of a magical formula which saved him the trouble of studying history. He gives the

[1] *Cf. Encyklopædie*, § 86, Zusatz, 2; *Gesch. der Phil.*, Einleitung, A., § 3. (*Werke*, vi., pp. 166-168; xiii., p. 42 *seq.*)

[2] *Werke*, xiii., p. 43, ed. 1840. This particular sentence was not given in the edition of 1833.

reason why we should expect to find such a general correspondence between the logical and the historical order. The earlier systems are not, as used to be held and as was still held by many in his day, the depositories of a higher and purer wisdom to which later generations must look back. He would indeed agree with Bacon about the reputed wisdom of the ancients: "*Antiquitas saeculi juventus mundi*". The earlier systems are the poorest, the emptiest, the most abstract. They give crude and one-sided answers to a vaguely put question about the underlying principle of things, and it is only through the conflict of opposing systems that the discussion of the problem gradually became more adequate. Thus Plato's philosophy is an attempt to get beyond the one-sided theories of Eleatics and Heracleiteans, while recognising the element of truth in each of these opposing systems. And it is Plato, too, who calls philosophy "dialectic," and comes in his great metaphysical dialogues to occupy himself precisely with what Hegel calls logical categories, while always keeping in view the historical controversies that had preceded him. Hegel sought to arrange the concepts of our ordinary and of our scientific thinking in their logical order, *i.e.*, to proceed from abstract to concrete, and to show how the dialectical antinomies into which our reason inevitably falls are no argument for complete philosophical agnosticism, but only prove the necessity of struggling to get beyond one-sided and superficial views of things and of trying to see them in the totality of their complex relationships to one another. He, therefore, expected to find traces of a similar dialectic movement in the long labour of the human mind throughout the ages. Nor are we to suppose, as the language of many of Hegel's critics might suggest, that he turned away like Descartes from the world of books and from the world of men and spun his complete system of logic out of his own inner consciousness and then sought with this fanciful cobweb to entrap the living universe. His early studies were chiefly devoted to Greek literature; and it was undoubtedly in the history of Greek thought, as he read it, that he found a main reason for rearranging and supplementing and "objectifying" the categories which German philosophy had inherited from Kant. Hegel's *History of Philosophy* and his *Logic* may both be open to many criticisms; but one criticism is quite unfair, *viz.*, that he brought a ready-made dogmatic system to the interpretation of preceding philosophies, enslaving facts to his logic. His *Logic* is in great part the outgrowth of his historical studies, and represents the inferences he had drawn

from history as he understood it. His actual procedure was inductive and experiental—as much as any real scientific procedure can be inductive and experiental.[1] Common-sense laughs at Hegel for saying that mere Being = Nothing. But he could find abundant historical evidence for the logical transition. If the Absolute be thought of as that of which we may not predict anything determinate, it becomes equivalent to Nothing. Oriental religions and philosophies and Neoplatonic conceptions of the Absolute confirm his view; and did not Eleatic philosophy end in the paradox of Gorgias who wrote: *περὶ φύσεως ἢ τοῦ μὴ ὄντος*?

Hegel and some of his followers have been blamed for reading his system into Aristotle. The answer is given by Karl Michelet in his Preface to his Commentary on the *Ethics*: "*restituit tantum magistro suo quae ex ipso mutuatus est*". Scholars have been scandalised by an unhappy mistranslation which Hegel made of a passage in Plato's *Sophistes*. He mistranslated a particular sentence now and then, as many more special students of things Greek have done;[2]

[1] Rosenkranz, *Hegel's Leben*, pp. 10, 11, 14, supplies evidence that Hegel was studying not only Euripides and Sophocles, but Thucydides and Aristotle's *Ethics* (in 1788) before he studied Kant's *Critique of Pure Reason* (in 1789). The first traces of a tendency to philosophy are to be found in a little note-book which he began to keep in 1785, in which he collected definitions. The definition of logic (from whatever source derived) is certainly remarkable and significant: "*ein Inbegriff der Regeln des Denkens, abstrahirt aus der Geschichte der Menschheit*"—"a summary of the rules of thinking, abstracted from the history of mankind". In 1788 (his first year at Tübingen University), in a dissertation "On some of the Advantages of Classical Studies," he speaks of the reading of Greek and Latin authors as an appropriate preparation for the study of philosophy. We are exercised in the use of abstract conceptions and we find the germs of the philosophy of later times. "The many contradictions of the ancient philosophers, especially in their speculations on the practical part of philosophy, have at least lightened our trouble in finding the *via media* where the truth lies" (Rosenkranz, p. 27). By themselves such remarks might seem only the conventional apologetics of classical education, but in Hegel's case they are undoubtedly the germs of his conception of the relation between philosophy and history. Ueberweg in his *History of Philosophy* (Engl. transl., vol. ii., p. 235) says that for his master's degree (1790) Hegel wrote an essay "On the Study of the History of Philosophy". This is not mentioned by Rosenkranz, who makes the mistake of supposing Hegel himself to have written the thesis *De limite officiorum humanorum seposita animorum immortalitate*, which he had to defend (see Karl v. Hegel's edition of his father's *Letters*, i., p. 16 note). It is quite clear that Hegel had laboriously studied history and Greek literature and philosophy before he had definitely arrived at his philosophical system, and certainly before he elaborated his *Logic*.

[2] *E.g.*, Grote and Zeller in their astonishing interpretation of a passage in Aristotle's will. (*Cf.* MIND, N.S., vol. vi., p. 565.)

and since his time the materials for the history of Greek philosophy have not only increased in bulk but have been more critically estimated and made more intelligible and accessible, so that much of what Hegel has to say on the subject is out of date. Nevertheless to Hegel our whole study of Greek thought owes an enormous debt; and his influence may be traced, not only in his acknowledged disciples like Michelet and Schwegler, not only among those who came under his influence and passed out of it, like Zeller, but among many who have never directly owned allegiance to him and are even unaware how much of his thinking they have inherited. That we now study Plato without Neoplatonic and Aristotle without scholastic glosses is largely due to Hegel's historical spirit in seeking always to understand a philosopher in the light of his own particular environment. His wonderful insight into the real significance of the Greek Sophists (an insight which anticipates Grote without Grote's exaggeration and one-sidedness) may be taken as a crucial instance of his objectivity of outlook, freedom from bias and historical sympathy. I do not mean to assert that Hegel's historical judgments are always equally sound. Much has been discovered about the origins of civilisation since his days; much of what he says about the Oriental world was based on imperfect knowledge and has lost its interest; he does not perhaps sufficiently appreciate the work of the Roman spirit. Reaction against the unhistorical rationalism of the eighteenth century[1] leads him to be somewhat unfair to the newer type of constructive historical criticism which Niebuhr represented in his time. Teutonism, as with many of his patriotic countrymen, bulks excessively, it may be, in his interpretation of the modern world. But when he is dealing with the Hellenic world, he is dealing with what he had studied carefully and in the ardour of his youth. And I think, if we were to try to characterise Hegel's philosophical position briefly, the least inaccurate statement would be to say, that the main stream of German philosophy, which descended from Kant though Fichte and Schelling, was met in Hegel's mind by another and equally powerful current coming straight from Plato and Aristotle as well as by

[1] Yet Hegel was on the whole less influenced by mere reaction than most of the intellectual leaders of his age. He never disowned the debt even of Germany to the French Revolution. With all his enthusiasm for the Greeks he would not assent to Cousin's exaltation of ancient above modern philosophy (*Cf. Briefe*, ii., p. 297). Cousin indeed, after telling of an indignant outburst of Hegel's about Catholic superstitions, remarks that Hegel had retained the prejudices of an eighteenth century *philosophe* (Art. in *Revue des deux mondes*, August, 1866).

smaller side currents coming indirectly from them also but through Neoplatonic and Christian mystics. It is not only from Kant's Antinomies and from the philosophical method of Fichte, but directly from Plato and Aristotle that Hegel derived his dialectic; and it was from them, far more than from any modern philosopher, that he derived his ideas of the relation between philosophy and its history. None of Hegel's modern predecessors, except Leibniz, had appreciated the thought of the past in a catholic spirit; and Leibniz treats previous philosophical systems rather eclectically, accepting suggestions from many diverse sources but not applying the categories of continuity and of organic growth to the history of human thought in the same thoroughgoing way in which he applied them to the phenomena of the physical world.

In his use of the word "dialectic" Hegel may be said to bring it back to Plato's signification, in order to escape the deadlock into which Kant had brought metaphysics. In Plato the suggestions for a dialectic movement in the history of thought are slight, but they are not wanting. I have referred already to the relation in which Plato expressly puts his own doctrine of ideas to Heracleiteanism on the one side and to Eleaticism on the other; and Plato evidently regarded the Pythagorean doctrine of numbers as a "propædeutic" for his own theory. But even in the simpler "conversations" of Socrates we may find the germs of what we may call a dialectical interpretation of the history of thought. The beginning of the *Republic* seems to me a clear example of that method of seeking to arrive at truth through the conflict and clash of preceding opinion which is common to Plato, Aristotle and Hegel. In the old man Cephalus and his son Polemarchus, both living in the stage of proverbial morality and submission to the sacred authority of the poets, in the rhetorical sophist Thrasymachus and Plato's brothers, Glaucon and Adeimantus, educated young Athenians who have come under the sway of the "Sophistic" rationalism but are dissatisfied with it—in these persons of the dialogue we have a series of types representing the development of Greek thought and the preparation for Socrates. Against the definitions of Justice which the first two give very superficial—we might say "sophistical"—arguments suffice. The contradictions easily show themselves. The thesis of Thrasymachus requires a harder struggle before it can be made to disclose its incoherence and refute itself—and, it is to be noted, the Socratic method is always dialectical, it is to make an inadequate theory when carried out into its

consequences lead to its own negation. Glaucon and Adeimantus have advanced farther; they have absorbed a subtler rationalism than Thrasymachus, but have recognised its inadequacy, and so they are fitted to stimulate and to follow the Platonic Socrates in his constructive idealism.

This dialectic method is formulated in very simple terms by Aristotle in the *Nicomachean Ethics* VII. 1, § 5, 1145, *b* 2, where he proposes in discussing the subject of *ἀκρασία* to follow his customary plan of stating current opinions (*τὰ φαινόμενα, τὰ λεγόμενα*), going through the objections which may be made to them (*διαπορήσαντας*), and so arriving at a solution (*λύσις*), which if possible shall recognise the element of truth in all, or at least in the most important of these opinions. Here we have the germ of the Scholastic method of *quaestio, objecta, conclusio*. But with Aristotle it has not yet stiffened into a formal and external method; and his solutions are not as cut and dried as those of theologians were expected to be. Many illustrations of this method of *ἀπορίαι* may be found in the Aristotelian writings, *e.g.*, in the *Ethics* in the discussion of pleasure both in book vii. and in book x. One very conspicuous example on a large scale is supplied by the *Politics*. The whole of the second book is occupied with a criticism of Plato and other political theorists, and also of actual constitutions which had been held up as ideals.

In the *Metaphysics* we have the same method applied to "First Philosophy"—what we call "metaphysics". Aristotle thinks it necessary to go through the opinions of his predecessors. As he was the first to write (or inspire) a constitutional history,[1] so he was the first to write a history of philosophy, and he writes it as an integral and necessary part of his own metaphysical system. Schwegler indeed (in a note on *Met.* I. c. 3) holds that "the modern philosophical view [he means, of course, the Hegelian view] of the history of philosophy is entirely alien to Aristotle. He sees in it not a regular process of development going on with logical necessity, but regards it only from the pædagogic side, as a school

[1] The recently discovered *Ἀθηναίων πολιτεία*, which if not written by Aristotle must have been written for his use, is not merely a description of the Athenian constitution at some particular period, but an account of its successive forms. It is the first constitutional history ever written. The other 157 *πολιτεῖαι* were probably less elaborate documents. But this extensive survey of the actual political institutions of mankind, barbarian as well as Greek, shows how Aristotle like Hegel prepared himself for philosophy by historical study.

of exercise for thought."[1] Now, Aristotle's philosophising of the history of philosophy is certainly very rudimentary compared with Hegel's; but it seems to me a treatment of that history essentially the same in kind. The various opinions are not simply put alongside of one another in scholastic fashion, as if they were all utterances of persons on the same mental level and conscious of precisely the same problem. Aristotle expressly groups them according to the degree in which they realise the fourfold question that has, in his view, to be asked about reality. As Hegel sees the categories of his *Logic* gradually reached by the successive philosophical schools, so Aristotle finds his doctrine of the four causes bit by bit emerging from the progress of Greek thought. The earliest philosophers, when they asked themselves what is the underlying principle of things, were content to assign the "matter," that out of which the world of phenomena came and into which it returns. Empedocles felt the need of efficient causes, and "in a stammering way" expressed a principle of movement in his "love" and "strife," but he then went on to treat these as if they were simply material elements alongside of the other four. Anaxagoras made an epoch by assigning Reason or Intelligence as the efficient cause which produces order out of chaos, but he did not work out the principle in detail. Similarly, the Pythagoreans had advanced beyond the Ionians in assigning Number (or rather we should say "Figure," for Greek arithmetic was geometrical) as the principle of things; but they went on to treat this formal principle as if it were material, as if the universe were actually pieced together out of geometrical points, lines and figures. The Pythagorean "number" was the germ of the Platonic "ideas," which are a formal principle clearly recognised as such. And thus there only remains the final cause for Aristotle himself to put forward as his distinctive principle, though the germs of that also are to be found in earlier philosophy and especially in the Platonic. Now, whatever be thought of this particular interpretation of the history of Greek philosophy, it seems to me an interpretation of the same kind as that which Hegel applies to the history of all philosophy. Besides, we find Aristotle expressly recognising a logical necessity in the transition from

[1] Schwegler also thinks that the notion of a cycle in history excludes the idea of logical development. Aristotle certainly has the popular Greek notion of a cycle as a background to his thinking now and then; but it nowhere prevents him from taking a thoroughly scientific view of social or intellectual evolution. Contrast *Pol.* I. 2, with Plato's *Laws* III., 676-680.

one system to another. Thus in *Met.* I., 3, § 15, 984 *a* 18, he writes *αὐτὸ τὸ πρᾶγμα ὡδοποίησεν αὐτοῖς καὶ συνηνάγκασε ζητεῖν*, which amounts to recognising that the individual thinker is led on to a fresh stage by the logical necessities of the problem itself. And, again, a few lines farther on (§ 21, 984 *b* 9), *ὑπ' αὐτῆς τῆς ἀληθείας ἀναγκαζόμενοι τὴν ἐχομένην ἐζήτησαν ἀρχήν*, *i.e.*, the principles follow one another in a necessary sequence (*τὴν ἐχομένην ἀρχήν*), and thought is inevitably led on (*ἀναγκαζόμενοι*) from one step to the next in logical order. In any philosophical interpretation of history purely chronological sequence must be put aside for logical sequence, philosophical history being something other than annals; and thus we find Aristotle placing Anaxagoras after Empedocles as the more advanced thinker, though younger in age (*Met.* I., 3, § 13, 984 *a* 12. In the context this is the only meaning that can be put upon *τοῖς δ' ἔργοις ὕστερος* applied to Anaxagoras.)

Hegel's treatment of the history of philosophy is then no audacious eccentricity of his own, but a development of what his studies of Greek philosophy and what the example of Aristotle suggested to him. Moreover, we may say, in Aristotle's words, that he was led to it as the inevitable next step by truth herself, that is to say, by the special truth which it fell to his age to recognise and proclaim. In passing from Kant to Hegel we pass from the period which culminated in the French Revolution to the period of reconstruction after the abstract and essentially unhistorical rationalism of the eighteenth century.[1] Hegel's attitude to history is no isolated phenomenon. On his own principles of interpretation he is significant simply because in the department of philosophical thought he gave express formulation to ideas which were at work in his age. Goethe and Sir Walter Scott[2] are conspicuous representatives of that movement of thought and sentiment which has made the nineteenth century so different from the eighteenth. And if we contrast Auguste Comte with Voltaire, we have another example of the subtle intellectual revolution which has changed so many of the categories through which we apprehend the past. We often

[1] Though, as has been already pointed out (p. 13, note), Hegel was never carried off his feet by the wave of reaction, like the Romanticists, Mediævalists, and other supporters of obscurantism and absolutism among his contemporaries.

[2] Hegel calls Scott "*seichter Kopf*" (Rosenkranz's *Leben*, p. 560), because of some of his moralisings about the French Revolution. But it was not by his *Life of Napoleon* that Scott helped to create the new historical spirit of studying institutions and ideas.

speak of our century as specially the century of progress in natural science. As mathematics gave a special colour or tone to the philosophical thinking of the seventeenth century, so biology seems to exercise the predominant intellectual influence in this century. And there is no doubt that the categories of "organism" and "evolution" now everywhere affect our language and make impossible to us many modes of thinking about human society which were customary and unquestioned a hundred years ago. But along with the progress of biological science we must certainly take account also of the influence exercised by scientific history and the scientific criticism of documents. This influence has worked entirely in the same direction with the biological, and has contributed a great part of what "Evolution" in its largest sense means. To regard human nature as a constant factor in all times and places, to which varying circumstances have simply to be added on, or to believe the history of mankind to be a degeneration from a primitive state of perfection—these are modes of thinking impossible to the educated man of our days. Yet they were an accepted part of the *Weltanschauung*, or picture of the universe, which our grandfathers had before their mental eyes. What considers itself "orthodox" belief and what considers itself "free-thinking"—except among the most ignorant and backward—have both taken on a different character from that which they had in last century or the earlier half of this. "The historical spirit" has penetrated even into the minds of journalists and popular preachers; it has become almost a commonplace of these "sophists" of our day. And a great deal of the best scientific work which is now being done in the world is in the region of historical and anthropological investigation, in the endeavour to get a true understanding of the past of the human race.

Of this historical spirit Hegel's philosophy was one of the earliest prominent expressions, and Hegel's philosophy has in course of time come to contribute greatly to its growth and diffusion. Hegel sometimes speaks as if the philosopher only summed up a completed stage of life and feeling; but the truth in this does not justify the inference that the philosopher exercises no influence on his age. To give a philosophical expression to the new interest in history was to promote the passing of the historical spirit into the common possession of the educated world.

It may, however, be objected that to recognise the importance of history and to study the problems of religion, law, politics and philosophy in an historical spirit is not the same

thing as to hold that the stages of historical development correspond to the categories of any metaphysical system. Is it not? If the historical spirit comes to be consciously realised and grasped, then I think it necessarily implies something like what Hegel holds. If our interest in the past is more than the curiosity of the antiquarian, if we really mean what we say when we even put aside the old word "history" —which only signified at first investigation and collection of materials for science—and if in the current cant of the day we talk about "the development of institutions" and the "evolution of ideas," we must recognise that the institutions and ideas of the present are the outcome of the struggle and conflict that have gone before; and therefore in our study of the history of philosophy we must hope to see (however difficult we may find it to trace the connecting links through the complex and confused materials) not a mere series of capricious speculations of arbitrary individual intellects but a continuous discussion, a dialectic movement running through the ages. And, while we recognise clearly the occurrence of periods of decline and retrogression, so far as we recognise progress in philosophical thought, we must admit something of the nature of a logical process which proceeds from emptier and more abstract to fuller and more adequate concepts. If we have given up that fatal method of grouping all philosophers in all ages into two parties, Sensationalists and Intuitionalists, like the Whigs and Tories of English political life, and if we find, as many do, some indication of a better understanding between different philosophical schools, and look upon them as complementary rather than rival opinions, then we have come to see that progress towards truth consists in a reconciliation of opposites and that the truest philosophical system would, as Aristotle held long before Hegel, take up all the others into it as elements of one whole.

It must indeed be frankly admitted that, while we have before us this ideal of a history of philosophy which should exhibit all the leading systems as the interconnected members of one organism or the stages in one process of growth (it does not matter which metaphor we use, provided that we take it from no less complex region than the organic), we must nevertheless be very careful that the details of historical fact are not distorted for the convenience of philosophical exposition. In other words, we must fully recognise the historical importance of tracing links of connexion and discovering the psychological sources of theories which may appear to be merely "accidental" and incapable of being

fitted into a scheme of logical development. The "contingent" element, the personality of the individual philosopher, his particular education and the various influences under which he came, cannot be safely neglected by the student of philosophical theories, however anxious he may be to keep to the main currents of thought and to escape the distracting toil of exploring side-channels and back waters.[1] Too much may, indeed, easily be made of this "contingent" element, as is done I think by those who would make a whole stage in the development of Plato's philosophy depend upon a supposed visit to Megara. On the other hand, when an historian or teacher of philosophy gives a complete account of Hume, based of course mainly on the *Treatise*, and then passes on to Kant and considers him as "answering Hume," accuracy is sacrificed to an appearance of precise dialectical opposition; and some misunderstanding of Kant has been the result of this not infrequent manner of exposition. In the first place, it might very well be said that Kant does not "answer" Hume. He appreciated Hume better than to treat him as Beattie and the other "answerers" do. But, in the second place, Kant had only read the *Essays*, and therefore he only knew of Hume's attack on the necessity of the causal nexus, and he was unaware of Hume's attempt to base mathematical truth upon experience.

The kind of commentary which we most need now upon the great philosophers of the past is not so much an exposition of their doctrines which shall make them more consistent with themselves than they really are, nor a merciless exposure of the inconsistencies and contradictions which can easily be found in systems from which we stand at a sufficient intellectual distance. Both these kinds of commentary are valuable in their way; but what is most necessary is a minute and accurate study of the sources from which a philosopher derived his ideas and of the particular circumstances which led to his laying stress on one rather than on another aspect of the truth as it appeared to him. To understand what the philosopher meant and in what order his ideas grew is the first thing; we may then go on to reconcile apparent contradictions or to detect new ones. But to understand a philosopher in this way implies that we study him in his historical environment. A "psychological" account of the genesis of a philosophical system, an exact intellectual biography of a

[1] It must be understood that I admit the "accidental" or the "contingent" element in history only in the same sense in which the biologist speaks of "accidental" or "spontaneous" variations. They are names for what we do not fully understand.

philosopher, is not a different method of approaching the study of a philosopher from the philosophical history of which I have been speaking, but implies the same principle carried out into preciser detail. The minute and careful study of the great leaders of political history does not take us away from "the spirit of the age" or the tendencies of "the general mind," but teaches us more about them; for no man however "original" we may consider him can do anything great, unless he finds a suitable time and place for his special work, *i.e.*, unless in some way or other he represents and expresses his own age and nation. The old controversy about great men and their importance as a factor in history was admirably dealt with long ago in the Greek story which Plato tells at the beginning of the *Republic* (329 E, 330 A). Themistocles was taunted by a native of the insignificant island of Seriphos with owing his fame to the accident of his being an Athenian. "Neither would I," he answered, "being a Seriphian, nor would you being an Athenian, have attained greatness." In treating of men of action what we call the "contingent" element, *i.e.*, the element which we cannot yet and may never be able thoroughly to know and understand, bulks very largely; but, as Hegel points out, in the Introduction to his *Lectures*, in the history of philosophy the purely personal element does not come in to the same degree as it does in political history. The man who is making a nation may seem to choose sometimes rather arbitrarily, and perhaps from private motives, whether he will enlarge his country by quarrelling with his right hand or his left hand neighbour—though such purely personal motives are always a very trivial part of the explanation of great historical events. But the really serious philosopher does not make an arbitrary choice of his problems or of his point of view. He finds his problems determined for him by his age and by the special work of his predecessors; and his system grows in his mind under the influence of what he honestly takes to be logical necessity. In one sense the problems of philosophy are always the same, because they are simply a few leading questions about the ultimate nature of things; but the particular form which these problems take must vary from age to age, and the great philosophers who serve as landmarks in the course of thought are those who have grasped most clearly the special aspect which the problems have assumed for their own time. Those who have adhered to traditional ways of dealing with the questions or those whose type of thinking is so peculiar and independent as to have no affinity to what is seething in the minds of

their contemporaries may be interesting as survivals or as precursors, but they do not help us to trace the main currents of human thought.

If it is objected that we may indeed detect the links of causal connexion in the rise and fall of particular opinions, but that that gives us no warrant for seeing any progress towards truth or any development of one eternal philosophy amid the changes and chances of mortal speculations—to this objection the only answer can be that all knowledge rests upon faith, in the sense that a faith in the ultimate rationality of the universe is the presupposition (however unacknowledged) of all serious science and of all strenuous conduct; and that the very task of philosophy, however difficult it may be, however unsatisfactory our best attainments, is to make this "faith in Providence" intelligible.[1] *Credo ut intelligam* is a double-edged motto. And if we can hope to find a meaning in the course of events in any part of the universe, most surely it ought to be in the movement of thought from one clear consciousness to another. A blind faith—and some of those who call attention to our dependence on faith seem to take for their motto *Credo ne intelligam*—may be more convenient for ecclesiastical authority, but can only be recognised by philosophy as a sceptical or ironical device for keeping science free from theological interference.

Another objection sometimes made to the Hegelian treatment of the history of philosophy is this, that on Hegel's own principles that method must now be superseded, and yet if Hegel was right his philosophy is the final truth. The argument makes a plausible dilemma; but both horns may be evaded. In the first place, I do not think that any one, however much he may feel the debt of the world to Hegel, will now be found to set up Hegel as a final authority, a new St. Thomas Aquinas, on whom we must be content to write commentaries. Hegel's "Encyclopædic" method of exposition, like the mathematical form adopted by Spinoza, has injured his reputation and prevented him being rightly understood; but it was due to the influences of his surroundings. He lived in a time of audacious system-building. Moreover he was a professor of philosophy, and had been for seven years a tutor in private families and for eight years

[1] *Cf.* Hegel, *History of Philosophy*, Engl. transl., i., p. 35 (*Werke*, xiii., p. 49). "The great assumption that what has taken place in the world has done so in conformity with reason—which is what first gives the history of philosophy its true interest—is nothing else than trust in Providence, only in another form."

the headmaster of a school. If a university professor is apt to be dogmatic (and the German practice of *Dictaten* has something to answer for), a teacher of boys is bound to be so, and it was during these years of schoolmastering that Hegel elaborated his logic. We might remember too that he edited a newspaper for a year, and the journalist inevitably tends to assume the attributes of omniscience and infallibility. On Hegel's own principles his "finality" is only provisional; he sums up the thought of his time as he understands it. Is his point of view then no longer tenable? What is the system that has superseded his, and what is its attitude towards the history of philosophy? Great philosophies do not give place to one another like changes in the fashions. We are apt to think ourselves very new in our ideas compared with our predecessors of ten years ago; but periods in thought cannot always be counted so rapidly. It will probably take some time yet before Hegel's system is superseded, because it will not be superseded till it has been assimilated in the ordinary thinking of the educated world. Now that is a process which, though slow, has been going on very steadily and yet to a great extent unconsciously. And in the region of philosophy, the special characteristics of our time, the attention given on the one hand to minute psychological investigation, the endeavour to get a genetic account of the individual human mind, and on the other hand the labour expended on the history of institutions and of ideas—these two prevailing types of intellectual activity mean that the task which Hegel set to philosophy is being taken very seriously. It is only through more careful study of "subjective mind" and of "objective mind" that we can hope to reach a clearer outlook towards "absolute mind," which is the distant goal of our systematic thinking.

In this sense we may accept what Green said about Hegel's work: "It must all be done over again".[1] And to recur to my special subject—the study of past philosophy must be as minute, as scholarly, as possible, if we are to hope to understand the development of thought and to understand our own problems. This sets us an ideal of study which is terribly difficult and may seem unattainable. For we know how we lose sight of the forest in the trees, and how "philology" or minute scholarship and antiquarian research are apt to be hostile to that looking at things as a whole which philosophy requires. But we must make

[1] I think he used these very words. The idea, at least, will be found in his review of Principal Caird's *Introduction to the Philosophy of Religion* (reprinted in Green's *Works*, vol. iii., p. 138 *seq.*).

the best of the inevitable. Here, as everywhere, we have an ideal of totality which we cannot complete and which nevertheless regulates our thinking at every step. We each of us must be content to take a great deal at second-hand. There is a sentence of Hegel's which even his most adverse critics may approve. "There are periods," he says, "with regard to which it is to be wished that others had read the works of the philosophers and provided us with extracts."[1] It is a suggestion that may be applied even to large parts of Hegel's own works and to most of what was produced by his contemporaries. Co-operation can certainly in this way be applied in philosophy, so far as it means a study of philosophers. And this is a matter in which, if I may say so, I think a society such as this and the philosophical journals which are a comparatively new feature in the English-speaking world may do great service to all students of philosophy. Whoever has made a minute study of any particular philosopher or of any particular philosophical book should put his results in such a shape as to save others from the drudgery he has himself gone through, and in such a shape as to form a trustworthy source of information for others. It is one of the saddest things to see laborious research largely wasted through the results not being put in a convenient and accessible form.

My subject has led me to dwell mainly on one aspect of philosophical thought—its continuity through different ages. But I should be giving a false conception of what I take to be the business of philosophical thinking, if I did not, in a word at least, refer to the other aspect, to what I may call the subjective or personal aspect of philosophy. Every one must have his own philosophy. We can only face the problems rightly if we face them for ourselves. And for that reason one of the dangers we have to guard against is the scholastic habit of becoming the mere expositors of any one master, however great. For that reason we should welcome the rebels and the doubters, and should value every opportunity of serious discussion with those who have grown up under different influences from those that have moulded ourselves, or who by a long labour of systematic thinking have reached an independent position from which they criticise our most cherished judgments about the philosophers of the past.

[1] *Werke*, xiii., p. 128.

II.—SUBJECTIVE COLOURS AND THE AFTER-IMAGE: THEIR SIGNIFICANCE FOR THE THEORY OF ATTENTION.

By Margaret Floy Washburn.

Some time ago, while studying what is called the "flight of colours" in after-images produced by white light, it occurred to the writer that it would be interesting to observe the effect on this colour series of an effort to alter the colours subjectively. The following paper is in part a description of the results obtained in a series of experiments bearing on this problem, and performed during the winter and spring of 1898. By "subjective colour sensation," or "subjective alteration of colour," is meant the effect of an attempt to call up in the retinal field of the closed eye, or with open eyes in a dark room, the sensation of a given colour. Prof. Külpe notes in his *Outlines*, §§ 28, 2, and 74, 3, that it is possible in a dark room to call up at will patches of various colours, and that these central excitations sometimes approach the intensity of peripheral excitations. The problem here investigated relates simply to the influence of centrally excited sensations produced by such efforts upon the ordinary "ringing-off" of after-images.

It may be noticed at the outset that these experiments failed to show one hoped for result, which may perhaps yield itself to further investigation. During some of the earlier and less carefully controlled experiments, the effect of an effort to tinge the after-image with a certain colour seemed to be an intensification of the complementary colour; *e.g.*, a stage which in the preceding experiment had been whitish or indefinite in colour flashed out into vivid green when the subject attempted to turn it red. The obvious suggestion was that this was a contrast-effect, and contrast of a new order, so far as the writer was aware, where the inducing colour was of purely central origin. The supposition was rendered more plausible by the recollection of an experience that occurred some years ago. While spending a few days in an unfamiliar house I noticed from time to

time a bit of vivid red drapery hanging on the wall of a room. On one occasion, entering the room hastily and glancing toward the red drapery, I saw a distinct patch of green on the white wall, and it was a second or two before I realised that the red cloth had been removed, and that what was actually seen was the white wall itself. I can think of no other explanation for this phenomenon, which was as unmistakable as it was unexpected, than the hypothesis that the green patch was a contrast colour, induced by the *expected*, centrally excited, or subjective red. Nor is this hypothesis really weakened by my failure to find analogous results in the experiments described below. In the case of a phenomenon which can occur only when favoured by very complex conditions, one well-marked positive instance should outweigh a number of failures. As a matter of fact, the apparent contrast-effect in these experiments turned out later to be due in all probability to alterations in the brightness of the stimulating light.

The image used as a basis for the following experiments was that produced in the retinal field of the closed eyes by prolonged white-light stimulation. The conditions were carefully regulated in accordance with those laid down by Helmholtz in the *Physiologische Optik*. The subjects sat in a room lighted by the upper half of a window whose lower half was screened. The eyes were fixed upon one point of the window-frame for twenty seconds, and were then closed and covered. Nothing but sky could be seen through the window, and careful note was always taken of the degree of illumination. The precaution was, of course, observed to free the eyes entirely between experiments from all traces of the previous image. The subjects experimented on were the writer (*W.*) and three students of psychology (*M.*, *O.* and *D.*). Of these only *W.* had general practice in psychological experiments. Fortunately, however, a reliable test could be had both of the degree of special practice attained by the subjects in the course of the research and of the influence of external sources of error. This test lay in the uniformity of the colour changes observed in the ordinary unmodified image. A wholly unpractised observer watching the course of an after-image for the first time reports chaotic results, and no two such observers agree as to the alterations in colour which occur. No results were taken account of from any subject until she was sufficiently practised to find the colour changes approximately uniform or affected only by such fluctuations as could be accounted for from external causes.

The first point to be determined was the sequence of colours to be expected from the ordinary image under these conditions. This was ascertained by a series of forty experiments made by *W.* at the outset of the research; the other subjects being then practised as stated above, till their accounts of the course of the image were consistent. Throughout the research at the beginning of each hour's work, and at intervals during its progress, two or three observations were taken of the ordinary unmodified image. The results obtained were almost perfectly uniform. After the momentary positive same-coloured image which appeared immediately on closing the eyes, there was an interval of five or six seconds, when a positive image came again. This image was at first rather fluctuating in colour, patches of red and green sometimes appearing on it, but in a second or two the panes of the window filled out with sky blue, the window bars remaining dark. This blue stage then passed into a stage of vivid green, the image sometimes but not always disappearing between the two stages. The green image usually disappeared and reappeared five or six times, growing paler, almost whitish, in colour towards the end. This neutralising of the green tint seemed to be due to the gradual emergence of the complementary colour, for the image next assumed a deep red tone, while the black bars became luminous and slightly greenish, the light appearing first as a crack through the length of each dark bar. Here, of course, was the transition from the positive to the negative image. The red stage, after undergoing several fluctuations, gave place to a deep blue image with yellowish bright lines, which lasted longer than any of the preceding, growing gradually darker until it became indistinguishable. By one of the subjects (*O.*) this final image was described as dark green, or sometimes as bluish green. No other important exceptions to this sequence were noticed with practised subjects, and it corresponds to that observed by Helmholtz under similar conditions. Experiments made with ten and fifteen seconds' exposure also confirm Helmholtz' statement, that after a certain limit has been passed the duration of the stimulus does not affect the course of the image. Variations in the intensity of the stimulating light did, however, influence the colour changes of the image. The sequence just described occurred when the sky was unclouded, or when it was covered with thin clouds and presented a uniformly white surface. When the illumination was much diminished, the sky uniformly and heavily clouded, the blue and green positive images were lacking.

The first image in the regular series was reddish white with dark lines. The colour gradually deepened, and the red negative image appeared, followed after several fluctuations by a dark blue negative image, very bright and distinct. The blue and green positive stages were regularly omitted when the sky was darkened; and the effect noted above, the brightened green which appeared several times when the subject tried to turn the image red, was very likely due to a brightening of the sky, as it was not observed in the later experiments, which were never made when the sky was in a condition to render the illumination variable in any marked degree.

When the subjects were sufficiently practised to be familiar with the ordinary course of the image and to find it regular, they were told before the experiment that they must by an effort of will turn the image red all the way through its course; that they must force back the other colour stages, or make them as brief as possible by fixing their attention on the idea of red. It was suggested that this could be brought about best by thinking hard of something red, at the same time trying to call up the colour in the retinal field; by fancying, for instance, that the window-panes were pools of blood. Corresponding suggestions of green and blue were made in other experiments; the subjects being told to think of green grass or blue sky. It soon became apparent that the carrying out of these suggestions was much easier for one of the subjects (*D.*) than for the other three. While *M.*, *W.* and *O.* have moderate visualising powers, *D.* is a good instance of the predominantly visual type, and was selected as a subject for that reason. In the case of the former, intense effort was needed to keep the attention fixed on the colour to be produced. This effort was manifest in a rigid position of the body, in frowning and biting the lips, and in a general expenditure of muscular energy, which became very fatiguing. The subjects often tried to reinforce the visual excitation by associated sound and muscular excitations, repeating internally the words 'red' or 'green' while trying to call up the colours. The strain of all this was found by the writer to be so great that the conditions of the experiment were altered, and instead of being required to visualise one colour throughout the whole course of the image, the subjects were asked in one set of experiments to turn the image red, blue, or green during the first half of its course, that is, up to the point where it passed from the positive to the negative stage; and in another set to wait until the image was entering upon the

negative stage, and then to try the subjective colour. In the case of the subject *D.* no such division of the experiments seemed necessary; much less effort was required to visualise the desired colour, simply thinking of some red, green or blue object being apparently sufficient.

The first set of results to be discussed are those obtained from the subjects *M.*, *W.* and *O.* Experiments where the effect of subjective red on the first half of the image was studied will be referred to as the *R. I.* experiments; those with subjective green in the first half as the *G. I.* experiments; those with subjective blue as the *B. I.*; while experiments with subjective red, green and blue in the second half will be designated as *R. II.*, *G. II.* and *B. II.* respectively.

The effect of subjective red in the *R. I.* experiments was manifested in three ways: (1) The blue positive image was observed to be strongly tinged with red. This effect was never visible on the green positive image, which resisted all efforts to turn it red. However (2), the dark lines on the green positive image were often made to assume a distinctly reddish tone; and (3) the blue and green stages were not infrequently much shorter than in the unmodified image, the effort to turn them red having apparently the effect of bringing on the red stage sooner than usual.

In the *G. I.* experiments the subjects were asked to make the image green at its first appearance, shortening or obliterating the blue stage; to hold the green as long as possible, and when the red stage appeared to force it back into green. It was found (1) that the blue image was tinged with green; (2) that its duration was distinctly shortened; (3) that the green image was noticeably brighter, and lasted longer than usual; and (4) that in some cases the green colour could be brought back after the image had turned red. The subject *O.*, to whom the final negative image looked dark green instead of dark blue, found that the effect of trying to bring back the green colour after the image had entered the red stage was to "hurry it on" into the final green negative image.

The chief results of the *B. I.* experiment were (1) that the blue positive stage was brighter and of longer duration than in the unmodified image; and (2) that blue patches appeared on the green image. *W.* also noticed during many of these experiments flashes and patches of blue light in the retinal field near the image.

In the *R. II.* experiments the effort was made to hold the red image as long as possible, and when the dark blue or

dark green colour began to appear to force it back into red. It was found (1) that the red image was brighter and lasted much longer than usual; (2) that the red colour would frequently be brought back even after the image had turned completely blue or green; and (3), by the subject *O.*, that when the image had become very dark and indistinct, and was on the point of disappearing, it could be made to look reddish.

The subjects were told in the *B. II.* experiments to shorten the red image and to bring on the dark blue negative stage as soon as possible. This result was obtained, and the blue negative image appeared brighter and lasted longer than usual. The subject *O.* found that under these conditions the final stage of the image was quite distinctly blue instead of green.

The attempt in the *G. II.* experiments was to shorten the red stage, and to turn the final blue negative image green, if possible. This latter result was of course most strongly marked in the case of the subject *O.*, who found the final image distinctly green. The dark blue negative image was, however, noticeably tinged with green for the other two observers. Another result was that the lines on both red and blue negative images appeared bright green in colour.

These results were not uniformly distributed throughout the experiments made in each class. Sometimes only one effect, *e.g.*, the brightening of the blue or green image, would be noticed. Sometimes several effects would appear in the same experiment. In from one to two per cent. of the experiments the effort to visualise produced no result at all. The high degree of strain put upon the attention subjected the results to variations arising from causes too slight and obscure to be traced or calculated, and a table showing the relative frequency of the effect described above reveals an irregular distribution from which no general principles can be deduced. The results themselves seem to fall, broadly speaking, into two classes, which, however, are not separated by any sharply defined line.

The first class comprises cases where the effect of visualising a certain colour was simply to intensify the traces of that colour already present in the retinal field. Central excitation of a given colour meant in these cases merely "calling attention" to that colour whenever it was actually present. In other words, it was an instance of what Prof. James calls "ideational preparation" for attention; the facilitation of attention to a given conscious contents by expectation. The results which fall into this class are: (1) the brightening

of a coloured image by central excitation of the same colour; (2) the appearance of patches of the visualised colour on images of other colours. The writer found that in her own case these patches of red on the blue image or of blue on the green were not infrequently present when there was no attempt to visualise red or blue; and interpreting the reports of the other subjects from her own experience, concludes that they were merely not noticed except when the subject had their colour specially in mind.

To the second class of results belong those cases (1) where the image of the visualised colour was brought on sooner than usual, the preceding stage being very considerably shortened; and (2) where it was held longer than usual, the succeeding stage being as it were thrust back when it began to appear. Here we have apparently not merely an intensification of sensations already peripherally excited, but either the production by central excitation of a sensation equal in intensity to the peripherally excited image, or the checking of a peripheral by a central excitation. Really, however, this second class of results is merely an exaggerated instance of the same principle manifested in the first class. Here, too, in all probability, a peripheral excitation is strengthened by a central excitation, only the former is so faint that the resulting sensation seems to have been produced wholly by central excitation. There is always a tendency for the colour of the after-image to fluctuate between stages. Some time before the green stage, for instance, actually passes into the red stage, the red process assumes more or less prominence, and after the red stage has appeared there are still traces of the green process surviving. If the subject is visualising red, the nascent red excitation will be strengthened and made predominant; if green, the fading traces of green will be held and intensified against the in-coming red.

In the case of the subject *D.* the effect of centrally excited colours on the course of the after-image was very striking. It amounted in many experiments to an entire transformation of the colour series. The subject's own report of one or two experiments will give the best idea of the extent of this effect. The ordinary sequence of colours in the "ringing-off" was for *D.* perfectly regular; blue positive, green positive, red negative, dark blue negative. When in the next experiment, after an interval sufficient to remove all traces of the preceding image from the retinal field, the subject was asked to visualise red, the course of the colour changes was described as follows: First a red image with

dark lines lasting some time and growing lighter, interrupted once by a momentary green image. The lines then became bright, and the red negative image remained until the end of the series, traces of blue appearing from time to time. After the usual interval, the subject was asked to turn the image green in the next experiment, and the following colour sequence was obtained : A light green image with dark lines, the lines gradually becoming reddish ; then a red image with green lines, the lines spreading till the whole image was dark green, which it remained until its entire disappearance. Finally, where blue was visualised, the sequence of colours was : purple positive, light blue positive, light blue positive with greenish lines, very short red negative, vivid blue negative with yellow lines.

Such results as these show that for a person with unusually vivid powers of visual imagination, central excitation of visual centres, whose peripheral excitation by white light is so far weakened that the corresponding colour sensations have quite disappeared from the after-image, may reinforce their activity to such an extent as to make their sensations predominate in the image. We have here an extreme case of the effect of central reinforcement on weak peripheral excitation ; an effect which appears to a less marked degree in the results from the other subjects.

The most obvious theoretical consideration suggested by these phenomena is one which hardly needs to be dwelt on, since it has been recognised for so long and is supported by so many other lines of evidence. I mean the fact that perception and idea differ ultimately only in the manner of their production. The after-image, while of peripheral origin, stands in point of intensity midway between the two. Here, where the intensity of the peripheral process is reduced to a minimum, the resulting conscious state is seen to be practically identical in character with that produced by central excitation. But the chief interest of these experiments is their bearing on the theory of attention. The writer can state from her own introspection that for the three subjects of moderate visualising powers the effort to call up subjectively a certain colour meant simply an unusually intense effort to attend to that colour. That is, the central excitation of the visual centre was of the same order as that which occurs when one prepares to attend to certain conscious contents, *e.g.*, a certain overtone in a clang. Now if these experiments show anything, they show that the function of attention is positive as well as negative, intensifying as well as inhibiting; and further that

its positive effects are due to the fact that, whenever we 'voluntarily' attend to any peripherally excited conscious contents, its peripheral excitation is reinforced by a central excitation, and its intensity is thereby actually increased. This effect of increased intensity would naturally be especially well-marked and unmistakable in the case of after-images, where the peripheral process is of but slight intensity. Nothing but an actual reinforcement by central excitation can account for the cutting short or lengthening at will of the colour stages in the after-image.

The evidence which these experiments afford of the function of central excitations in attention suggests a criticism of the reason for assuming the existence of a special 'attention centre' somewhere in the frontal lobes. Every function which the attention or apperception centre is supposed to perform can be explained on the hypothesis that the organ of attention is the cortex as a whole; or more definitely, the sum total of those brain centres which are connected functionally according to the laws of association and habit with the centre whose accompanying conscious process is the object attended to. Attention means central reinforcement of an excitation which may be in the first instance either central or peripheral in origin. And this central reinforcement comes not from a single supreme centre, but from associated centres of the same order as that in which the original excitation takes place. The influx of nervous energy which occurs in such a process of course involves increased intensity on the part of the resulting conscious state. It also involves diminished intensity in the rest of the field of consciousness. For the cortex as a whole represents a certain limited amount of nervous energy. When the currents of central excitation are determined to a given brain centre or group of centres, the intensity of nervous processes elsewhere is necessarily diminished, precisely as the electric lights in a trolley car grow dimmer when the car starts. Hence comes the phenomenon known as abstraction, which surely needs no such hypothesis as that of an inhibitory influence exerted by a special centre.

Although attention is thus seen to involve increased intensity on the part of the mental state attended to, it does not follow that the more intense a conscious state is, the greater the degree of attention to it. The increase in intensity must be of central, of associative origin. Otherwise an idea could never be attended to in the waking life, unless it assumed the intensity of an hallucination. It is not the

fact that a monotonous sound suddenly becomes louder that constitutes the fact of its being attended to; it is the sudden stirring up of associated ideas of its cause and significance, the 'what's that?'—not the increase of intensity due to the external stimulus, but that due to the influx of excitation from associated brain centres. Such, at any rate, is the view of attention suggested, rather than proved, by the experiments described above. The writer hopes that as an hypothesis it is at least worth considering, if only to be rejected upon other evidence.

III.—HEGEL'S TREATMENT OF THE CATEGORIES OF THE OBJECTIVE NOTION.[1]

By J. Ellis McTaggart.

Last year I had the honour of laying before the Society an attempt at an explanation of Hegel's doctrine of the Subjective Notion. In continuing this to the Objective Notion, I should wish to take up the same position as before. The views I put before you I believe to be substantially the same as those of Hegel. But the point on which I would wish that discussion might turn is the intrinsic correctness of these views, and not their fidelity to the text.

The Objective Notion does not present so many difficulties as the preceding division. It is far less elaborately subdivided than the Subjective Notion, and (with the exception of the category of Chemism) it is much less influenced by attempts to make the development of the Logic correspond exactly to the divisions of some finite science. We shall, I think, find it necessary to criticise less, and be able to confine ourselves almost entirely to exposition.

The Objective Notion is the second division of the Doctrine of the Notion. It is divided into three sections, Mechanism, Chemism, and Teleology. The subdivisions of Chemism, which are only to be found in the *Greater Logic*, we may omit from consideration, for reasons which will be perceived when we come to that category. Mechanism is divided into Formal Mechanism, Mechanism with Affinity, and Absolute Mechanism. (These are the names given in the *Smaller Logic*. The names are different in the *Greater Logic*, and each division is again subdivided, but the argument is substantially the same.) Teleology again is subdivided into the Subjective End, the Means, and the Realised End. (These names are only found in the *Greater Logic*. In the *Smaller Logic* no names are given although the divisions are found.)

Two of these categories bear, it will be noticed, the names of physical sciences. This has the same significance as the use of the terms of formal logic in the Subjective Notion. The categories of Mechanism and Chemism do not apply

[1] Read before the Aristotelian Society.

only to the subject matter of Mechanics and Chemistry. Like all categories each of them is a predicate—more or less accurate—of all reality. Still less is it the case that an attempt is made by pure thought to deduce all the special characteristics of Mechanics and Chemistry as empirical sciences. What Hegel means by the names is that the most striking instances of the uses of the categories which he has called Mechanism and Chemism are to be found in the sciences of Mechanics and Chemistry. (We shall, I think, find reason to doubt this view about Chemism.) The use of the category is not confined to the science after which it is named, nor has the category anything to do with the empirical details of that science, but it is the form of pure thought which the science most naturally and usually employs.

Why is the part of the logic which we are considering called the Objective Notion? It is clearly meant as an antithesis to the title of Subjective Notion given to the previous division. Now we saw reason in our last paper to reject the view that Subjective here meant the inner as opposed to the outer. It must rather mean the particular, contingent, and capricious, as opposed to the universal, necessary, and reasonable. And we saw there that the Subjective Notion began by dealing with systems of classification which were contingent and capricious, and finally ended in a system of classification which was universal and necessary. This result is inherited by the next division of the Logic. All the systematisations made in the different stages of the Objective Notion claim to be, not classifications we *may* adopt, like those in the earlier stages of the Subjective Notion, but, on the contrary, classifications which express the whole nature of the reality, and which therefore we *must* adopt. It is on this account that it is entitled to the name of Objective.

In considering the transition from the Subjective to the Objective Notion, I should wish to refer to my paper on the Subjective Notion (MIND, 1897, p. 171). The conclusion there arrived at was that "things are doubly connected—by similarity and by causation. And it is obvious that a thing may be, and generally is, connected by the one tie to things very different from those to which it is connected by the other." I submitted that the dialectic "first takes up the relation of similarity, and works it out through the course of the Subjective Notion. Then, in the Objective Notion, it proceeds to work out the relation of determination—not going back arbitrarily to pick it up, but led on to it again by dialectical necessity, since the Subjective Notion, when fully

worked out, shows itself to have a defect which can only be remedied by the further development of the idea of determination."

We concluded that the final result reached in the Subjective Notion might be expressed as "the conception of a regular system of laws proceeding from the more general to the less general, embracing at the top the whole of reality in a single unity, and at the bottom accounting for every quality in every individual" (MIND, 1897, p. 357).

But now that the Subjective Notion is worked out to its highest point its inherent one-sidedness comes to the front —namely, its omission of connexion by determination. And this shows itself in an imperfection which becomes apparent in the highest form of the Subjective Notion. According to that form the highest type of knowledge is, Every A is either B or C. But such knowledge is necessarily incomplete. For of any given A, we know it is either B or C, but we do not know which it is. And yet it is certain that it *is* one of them, and it is no more the other than it is X or Y. How is this to be determined? All that the Subjective Notion can do for us is to class A_1 under the general head A, and *ex hypothesi* this cannot determine whether it is B or C. (If we put the position, as Hegel does, in the form of a disjunctive syllogism, the question will take the form, How do we get the minor premiss, A is not C?) We require a further determination of objects which their inner nature, as we are able at this stage of the dialectic to understand it, cannot give us. What can remain? It can only be determination from outside. And thus we are naturally led back at the end of the Subjective Notion to the conception of the reciprocal connexion of objects by determination—that very conception which we had temporarily ignored while dealing with the Subjective Notion. Thus the argument takes the course that, from the nature of the dialectic, might be anticipated. When we left one element of Reciprocity behind, and, in the Thesis of the Doctrine of the Notion, devoted ourselves to developing the other side only, we could predict that the incompleteness thus created would require us to develop the other element of Reciprocity in the Antithesis. And this is exactly what has happened. We are now on the point of beginning the Antithesis—namely, the Objective Notion, and the course of the argument has led us back to the ignored element of Reciprocity.

I am aware that this is not the way in which Hegel himself makes the transition from the Subjective to the Objective Notion (cp. *Encyclopædia*, section 193, and *Werke*, vol. v.,

p. 170.) But it appears necessary to differ from him on this point, for three reasons. In the first place, this view of the relation between the Subjective and Objective Notions seems the only one by which we can account for the difficult transition between Reciprocity and the Subjective Notion (cp. MIND, 1897, pp. 170-173). In the second place, Hegel's transition leaves the special and characteristic defect of the Subjective Notion—its powerlessness to determine which of the possible alternatives is real—unnoticed and untranscended. And, finally, Hegel's transition does not seem convincing in itself. The line of his argument appears to be that at the end of the Subjective Notion the mediation is merged, that this produces immediacy, and that this forms the transition to the Object. But how has the mediation been merged, so that we can pass to the immediate Object? Surely it has not been completely merged. The highest point of the Subjective Notion, as we saw, is found in the proposition A is either B or C. This may be said to be an immediate connexion between A on the one hand, and B *and* C on the other. But in any particular object A will be connected with B *or* C—not with both. A still requires mediation to determine whether, in this case, it is to be B or C, and it is rather the necessity of this mediation, as we have seen, and not the transcending of all mediation, which takes us on to the Objective Notion.

MECHANISM.

Hegel begins by remarking that the Object, which he takes to begin with as single, splits itself up "into distinct parts each of which is itself the totality" (*Enc.*, section 194). He accounts for this by means of the immediacy which he takes to be the special characteristic, at this stage, of the Objective Notion. But, even on my view of transition to the Objective Notion, the breaking up of the Object remains intelligible. At the end of the Subjective Notion we had, not indeed a blank unity, but a system of objects completely united, and united—this is the essential point—by their inner natures, and not by any merely external relation. Now when we pass from connexion by similarity to connexion by determination, we leave this union by inner nature behind us. If we look at things as they determine one another, we find them connected indeed, but, so far, connected only in an external way. They no longer form a single unity, but, on the contrary, an aggregate of objects, secondarily connected, no doubt, but primarily separated.

Of course this does not mean that the union by inner nature has been disproved or abolished. It is still there. But we have seen that, by itself, it cannot account for reality, and that it must be supplemented by the principle of connexion by determination. The objects which are determining one another have still their inner natures, as those have been expounded in the Subjective Notion. But we are now considering them as determining one another, and from that point of view they must be looked at as separate, since their relations are external. Thus the reality, which was previously looked at as primarily a whole, is now looked at as primarily a plurality, or, in Hegelian language, the totality breaks up into distinct parts.

The Objects are, then, at first taken as merely externally connected. Mechanics is the science which has the strongest tendency to treat the external relations of objects as entirely independent of their inner natures and, therefore, Hegel calls the first division of the Objective Notion by the name of Mechanism. Of this the first and most extreme form is

Formal Mechanism.

The definition of this, as often happens in the dialectic, is identical with that of the larger division, of which it is the first subdivision. The two other subdivisions modify and correct the characteristic idea of Mechanism. But in Formal Mechanism it is given in its full extent. Each object enters into external relations with all others outside it, but these external relations are not affected by, and do not affect, the internal nature of the objects related.

A theory so extreme as this can only be accepted, with regard to objects of experience, as a methodological expedient. It may sometimes be convenient to consider objects, for some particular and limited purpose, *as if* their external relations had no influence on their inner nature, or their inner nature on their external relations. But experience teaches us, too plainly to be disregarded, that every external event that happens to any object of experience *does* effect its inner nature, and that, on the other hand, the external relations into which objects enter are largely determined by what the objects are.

Atoms, however, cannot be directly perceived, and in their case, therefore, empirical knowledge is powerless to check the errors of theory. And Atomism has got very near, sometimes, to the position of Formal Mechanism. It would not indeed assert that the inner nature of the atoms was entirely

a matter of indifference to their outer relations. They could not, for example, repel one another, except by some property of impenetrability. But it has been asserted that a change in their outer relations makes no change in their inner nature, and that the inner nature, on the other hand, has no influence in deciding which, of various possible relations, should be the one into which they actually should enter.

Hegel says in the *Greater Logic* (*Werke*, vol. v., p. 183) that this is the standpoint of Determinism. The name does not, at first sight, seem very appropriate, since one of the chief characteristics of the category is that the inner nature of the thing is not determined by its outer relations. But it is the determination of the outer relations to which Hegel refers here, and the significance of the name is negative. It refers to the absence of any *self-determination* on the part of the Object. If we ask why it is determined in this way rather than that, we can only attribute it to determination by another Object, which, in its turn, must be determined by a third, and so on indefinitely. In no case can the Object be self-determined, because in no case can the inner nature of the Object have anything to do with its determinations.

Such a determinism would lead to a morality not unlike that of the Stoics. For morality is in the long run concerned only with the inner states of people—though not of course only with the inner state of the individual moral agent. If every one was good and happy in himself, all external relations would be quite indifferent to morality, which only cares for external things in so far as they affect goodness or happiness. And if the inner nature of man, as of all other Objects, was independent of his external relations, then, whatever his circumstances, it would be in each man's power to be free, virtuous and happy. Such a view would of course tend to produce absolute indifference to the affairs of the outside world, and forms a striking contrast to the despairing Fatalism, which we shall see to be the ethical correlate of Mechanism with Affinity.

How does this category demonstrate its insufficiency? The important point for this is the fact that each of these Objects, which are only externally related, has not only an inner nature, but an inner nature determined in the way expounded in the Subjective Notion. It is this which breaks down the category and carries us on to the next, and I should like to call attention to this as an incidental confirmation of my view as to the relation of the Subjective and Objective Notions. For it fully explains and justifies the postponement of the consideration of connexion by determination until connexion

by similarity had been dealt with. It was not merely due, as might have been previously supposed, to the impossibility of considering two things at once. On the contrary, there was the positive and definite reason that, until the inner nature of objects had been developed, it would be impossible to pass out of the simplest and crudest form of connexion by determination.

In the earlier stages of Essence there would have been no contradiction in such a category as Mechanism. For there the Essence and the Appearance were conceived as realities which, though connected, possessed independent qualities. To determine the Appearance would not be to determine the Essence, and thus the inner nature of a thing could remain unaffected by its outer relations.

Even when the category of Reciprocity was reached, all we could have said of the assertion of the independence of the inner and the outer was not that it was false, but that it was unmeaning. For things, looked at under the category of Reciprocity, had no inner nature at all. It is true that they had those relations of Likeness and Unlikeness, out of which, as the Subjective Notion progressed, an inner nature developed. But at the end of Essence and the beginning of the Notion these relations also were purely external. They did not become an inner nature of the things that possessed them until the justification of Universal Judgments, in the course of the Subjective Notion, showed us that they were not accidents of Individuals, but, on the contrary, essential to the existence of those Individuals.

At the point which we have now reached, however, the matter is entirely different. Every Object, the Subjective Notion has taught us, must have an inner nature. And in the course of the Doctrine of Essence we learned that, if anything has an inner nature at all, it cannot be *merely* inner, that it, and the whole of it, must be manifested by the outside of the object—that is, by its external relations. And, conversely, no outer nature can be entirely outer. There can no more be anything in appearance which has not its root in Essence, than there can be anything in Essence which does not manifest itself in appearance.

And thus the category of Formal Mechanism contains a clear contradiction. The inner nature of an Object, it demands, shall be indifferent to its external relations of determination. These external relations belong somehow, and in some respects, to the Object, or there would be no meaning in calling them the external relations of that Object. They are not its inner nature. They must therefore be its

outer side, or part of its outer side. The category of Formal Mechanism, therefore, demands an Outer which has no relation to the Inner. And this is just what was proved in the Doctrine of Essence to be impossible.

If we wish to look at the question in a more concrete way, we may ask ourselves how much knowledge of the inner nature of an Object would be left us if we abstracted all knowledge of the effects which it produced on other Objects, and of the reactions by which it responded to the influences exerted on it from outside. The answer would certainly be that all knowledge of the inner nature would have vanished, and the conclusion to be drawn is that it is impossible to separate inner nature and outer relations.[1]

Or, looking at the other side, we may ask what meaning could be given to the statement that a relation x was a relation *of* A and B, if it did not affect the inner nature of either, and therefore made no difference to either of them. Why in this case should we call x a relation of A and B rather than of C and D? As Lotze points out (*Logic*, section 338) a relation of things cannot be merely *between* them. It is *in* them, or it is nowhere.

If then the outer relations and inner nature of the object are not absolutely independent, how do they stand to one another? The *primâ facie* assumption, since they at any rate profess to be different, is that they are two separate realities, acting on one another. The arguments given above, indeed, suggest that the connexion is closer than this, but Hegel prefers to approach the truth gradually, by stating and transcending this view of the interaction of separate realities. This forms the second subdivision of Mechanism, and he entitles it:—

Mechanism with Affinity.

This is a somewhat perplexing title, nor is the original (*Differenter Mechanismus*) much clearer. The *Smaller Logic* is scarcely of any use here, owing to the very condensed way in which Hegel treats the subdivisions of Mechanism. By

[1] It may be objected that it is possible to form an idea of the inner nature of the universe, although it has nothing outside it with which it can enter into relations. But the universe is not a single Object, but a differentiated unity of parts, each of which is to be regarded as a centre of reality. It is the relations between these which constitute the inner nature of the universe. But the Objects which we are now considering are not systems of centres. They are single centres, and, except for their external relations, would be blank unities, and therefore non-entities.

the aid of the *Greater Logic*, however, it is possible to catch the meaning of the category. The outer relations and the inner nature influence one another, and the significance of the name appears to be that one Object is no longer as suitable as another to enter into any particular relations. Since the inner nature has some influence on the outer relations, it is only those Objects whose inner nature is of a particular kind which are capable of entering into particular relations.

To this category, Hegel says (*Werke*, vol. v., p. 192), belongs the idea of Fate—a blind Fate, conceived as crushing and ignoring the individuals who are in its power. This conception of the sacrifice of the individual to the order of things outside him could not have arisen in the category of Formal Mechanism, since there the interior of any Object was quite untouched by, and could not be sacrificed to, external circumstances. And in the next category, that of Absolute Mechanism, the opposition between inner and outer is replaced by the perception of their unity, and with it goes the idea of Fate as an alien and crushing power—to return again, on a higher level, in the category of Life, but to be again transcended by the category of Cognition. But, between Formal and Absolute Mechanism, our present category is precisely the proper sphere of Fate. For outside and inside are connected just so much that the former may act on the latter, just so little that there is no harmony between them. Fate has the individual Objects in its power, "*subjectos tanquam suos, viles tanquam alienos*".

The Stoicism which is the characteristic moral of Formal Mechanism necessarily leads on, if we do not refuse to look facts in the face, to the Fatalism which is characteristic of Mechanism with Affinity. It is all very well to say that every man has the power to be free, virtuous and happy under any circumstances. But the circumstances may include a badly trapped sewer which sends him out of the world, or a blow on the head which sends him into an asylum, or an education which leaves him with a complete ignorance of virtue, or a lively distaste for it. It is useless trying to escape from our circumstances. Such an "escape from Fate is itself the most unhappy of all Fates," as Hegel says. For the attempt at escape deprives us of our power over them, while it by no means deprives them of their power over us.

Fortunately this rather depressing category passes like the rest. If we consider more closely, we shall see that it is really impossible for the inner nature of an Object to be crushed. If we call this inner nature *xyz*, then one of two

alternatives follows. Either the Object has this inner nature, or it has not. If it has it, it has it, and the inner nature is not crushed, but, on the contrary, exists in its fulness. But if it has it not, then this *xyz* is not the Object's inner nature at all, and the Object is not in the least crushed or thwarted because it is not *xyz*. Why *should* it be *xyz*, if in point of fact it *is* not?

(Of course all this would not apply if we were speaking of self-conscious individuals—Objects who were in the fullest sense *for* self. In the case of any being with a power of conscious self-determination, the inner nature will include an ideal of some sort, and if outside circumstances prevent that ideal from being realised, then we can intelligibly speak of the inner nature being thwarted. For the inner nature in such a case is not *merely* a fact, but it is a fact which is a demand, and a demand can be real and yet unsatisfied. But we are not here dealing with self-conscious beings, and therefore the argument of the last paragraph will hold.)

How then can we get out of the contradiction in which this category involves us? We can be delivered from it by a line of argument which I have already more or less anticipated when criticising Formal Mechanism. There can, in fact, be no opposition between inner nature and outer relations, because there is no difference between them. All we mean by the inner nature of the Object is the general laws which determine the manner in which it does enter into relations. The inner nature of glass, for example, is just that it can scratch wax and cannot be scratched by it, that it cannot scratch diamonds, while diamonds can scratch it, and so on. If we try to think of any inner nature of the Object which is not expressed in the various actions and reactions, actual or possible, which the Object enters into, we absolutely fail.

And, while there is thus no inner nature which is not also outside relations, it is equally true that there are no outside relations which are not an expression of inner nature. This is often thrown into the background by the practical utility of considering one of the two terms in a relation as purely passive. But this is only a convenient inaccuracy. Everything which, as we say, "happens to" an Object, is really a manifestation of its inner nature. A *tabula rasa* is the stock example of something passive, and the active co-operation of the wax in the work of writing is not obvious on the surface. But when we consider how very different the result would have been if an attempt had been made to write on water, or on diamonds, it becomes evident that the

wax is really reacting as actively on the pencil, as gunpowder does on a match.

The result which we thus reach is not unlike the discovery in the Doctrine of Being, that Being-for-another is really Being-for-self. The inner nature of each Object is really identical with its relations to all other Objects, and we thus pass to the category of—

Absolute Mechanism.

Since Hegel has correlated Formal Mechanism with Determinism, and Mechanism with Affinity with Fatalism, we might venture to carry on the process by comparing Absolute Mechanism with Spinoza's doctrine of Freedom. According to Spinoza, everything and everybody is free. For Freedom only consists in acting according to your nature, and there is, of course, no power in the universe (yourself included) which could possibly make you do anything not according to your nature.

This is doubtless true as far as it goes. But it does not go as far as Spinoza thinks, who endeavours to find in it a basis for resignation, if not for optimism. For this it is insufficient, for the reasons pointed out above. If we are to mean by Freedom anything which is of the least value to spirit, it must mean acting, not merely according to our nature, but according to our desires and, ultimately, our ideals. Supposing that I get toothache when I sit near a window, or feel jealous when I see my superiors, I shall certainly be acting according to my nature, but that will not make me feel that toothache and jealousy are desirable or ideal, and there will be a painfully true sense in which I can say that my freedom is interfered with by each of them. The only valuable freedom must be sought elsewhere—not in indeterminism indeed, but in self-realisation. But this comes later in the dialectic.

According to the Category of Absolute Mechanism, every Object is the centre of a system composed of all the other Objects which influence it. As everything in the universe stands in reciprocal connexion with everything else, it follows that each of these systems embraces the whole of reality, and that they are distinguished from one another by the fact that each has a different centre.

The central Object in each system is called by Hegel the Universal. Its best claim to that name seems to be that it alone in the system is to be looked on as self-determined. It is determined, in the first place, by all the surrounding

Objects. But, since these determinations only serve to bring out its own inner nature, it may be said to be self-determined. On the other hand, the surrounding Objects are looked at only as determining, not as determined at all, and so not self-determined. (Of course this only refers to the systems in which they are the determining Objects. Each of them has its own system, in which it is the central Object and therefore Universal.) The relations which connect the Universal with the Individuals are called by Hegel the Particular.

From another point of view the central Object may derive the title of Universal from the fact that it is the point of meeting of the other two terms, since only in that particular Object would the influence of the surrounding Objects produce just those actions and reactions. This is what Hegel seems to have been thinking of when he remarks that either the determining Objects or the relations could be taken as the Universal, as well as the determined Object. For we may consider the determining Objects as the bond of union between the central Object and the relations—since it is only these determinants which could enter into just those relations with that centre. Or we may consider the relations as the bond between the determining and the determined Objects, since those Objects could only be united by those relations. But this does not seem as deep a meaning for Universality as the one suggested in the last paragraph, and the successive transformation of the determining Objects and the relations into the Universal appears to have no influence on the general argument.

It should be noticed that the example of this category given by Hegel in both the *Greater* and the *Smaller Logic* is misleading. He there makes the State, or the Government, take the place of what I have called the central Object, while the citizens are the determining Objects. Now the State does not differ from the citizens as one citizen does from another, but is generically different. And both State and Government are, in their own nature, and not merely when specially taken as centres, realities of a more universal nature than individual citizens are. And thus the example would suggest that there are some Objects which are by their nature fitted to be the central Objects of systems, while others are assigned to the humbler position of determining Objects. But this, as we have seen, would be a mistake. For every possible Object is equally subject to Mechanism with Affinity, and we saw in the course of the deduction that every Object subject to Mechanism

with Affinity became the centre of a system of Absolute Mechanism.

Indeed we may say that the example, in the form which it takes in the *Smaller Logic*,[1] is not only misleading, but incorrect. For there he speaks of the State as the central Object. Now the State is not an Object distinct from the citizens, which can act and react on them, as each of them does on the rest. It is, as no one realised more thoroughly than Hegel, a unity of which the individual citizens are the parts. It is, no doubt, for Hegel, a real unity, not a mere aggregate, but on the other hand it is a unity which only exists in the citizens, and not side by side with them. Now this is a conception too advanced for Absolute Mechanism. For the conception of a system which is also a unity we shall have to wait for the category of Teleology, and conceive the State, not as an Object side by side with its citizens, but as the principle of their unity.

Hegel now passes from Absolute Mechanism to the next category. In his own words (*Enc.*, section 199) "the immediacy of existence, which the objects have in Absolute Mechanism, is implicitly negatived by the fact that their independence is derived from, and due to, their connexions with each other, and therefore to their own want of stability". In other words, the whole nature of each Object lies in the relations between it and other Objects. But each of these relations does not belong exclusively, *ex hypothesi*, to the one Object, but it shares it with the others. The nature of wax consists, for example, partly in the fact that it is melted by fire. But this melting is just as much part of the nature of the fire. The fact is shared between the wax and the fire, and cannot be said to belong to one of them more than the other. It belongs to both of them jointly.

We must notice in passing that this would not be true of self-conscious beings. Our emotions and perceptions are the result of the action of outside Objects on us, but there is a very intelligible meaning in saying that my pain is more my quality than it is that of the stone which hit me. But

[1] The example, in the form in which it is given in the *Greater Logic* (*Werke*, vol. v., p. 197), can scarcely be called positively incorrect. For Hegel does not speak there, as he does in the *Smaller Logic* (*Enc.*, section 198), of both Staat and Regierung, but of Regierung only. And if we take Regierung, as Hegel probably did, to mean a separate class—the king, civil servants, etc.—it would form a separate Object by the side of the citizens, which could enter into relations of Mechanism with them. But the example would still be misleading, as suggesting an intrinsic difference between those Objects which were fitted to be central Objects, and those which were not.

this is because there is, in a self-conscious being, a principle of unity higher than anything which we have attained in the Object. In dealing with simple Objects we must, I think, admit Hegel's argument that the relation is no more the quality of one Object than of the other.

The only subject of which the relation can be predicated will be the system which these two Objects form. The qualities will belong to this system, and it will be the true unity. But again, two Objects cannot form a closed system, since all Objects in the universe are in natural connexion. Our system of two Objects will have relations with others, and will be merged with them, in the same way that the original Objects were merged in it—since the relations, which alone give individuality, are found to be common property, and so merge, instead of keeping distinct. The system in which all the Objects, and all their relations, are contained, becomes the reality—the only true Object, of which all the relations contained in the system are adjectives. The individual Objects disappear, and we find ourselves in the category of—

CHEMISM.

This is a very perplexing category, and I must confess that Hegel's treatment of it seems to me to require emendation. There is in it, Hegel says, an oscillation between a Neutral Object on the one hand, and, on the other hand, two extremes, separate, but connected and in a state of tension. I do not think that it is possible to doubt that Hegel intended to give us here, not an alternation of categories, but a category of alternation. It is not, according to him, that we alternately look on reality as a neutral object and as a tension of extremes, but that we hold throughout the whole of Chemism a position which asserts that reality itself continually passes from one of these forms to the other.

The passage from Absolute Mechanism to Chemism—this appears to be Hegel's meaning—gives us the neutral object. But the neutral object is undifferentiated, "it has sunk back to immediacy". It has therefore no true unity. So it splits up into the extremes. But the extremes, being "biassed and strained,"—that is, in connexion with one another, fall back into the neutral object, and the process goes on *ad infinitum*.

To the validity of this line of argument I wish to suggest three objections. (*a*) In the first place, what right has Hegel to make a neutral object the result of the transition from

Absolute Mechanism? There was nothing in that transition to abolish differentiation. The various relations in which the differentiation consists, were by no means destroyed. All that was done was that they were lumped together, and attributed to a single logical subject—the system—instead of to the plurality of Objects which had been previously their logical subjects. This will not give us a neutral object, such as Hegel requires here.

(*b*) In the second place, if such a neutral object was reached, it would not split up into extremes, as Hegel wants it to do, but would vanish altogether. Such a neutral object could have nothing outside it, for it is to be coextensive with a mechanical system, and we have seen that every mechanical system is coextensive with the universe. And, again, the neutral object, being undifferentiated, could have nothing inside it. It would have therefore to be an absolutely blank reality. And the very first step in the Logic taught us that an absolutely blank reality was equivalent to absolute nothing. Consequently, even if the dialectic did get to the neutral object, it would never be able to pass from that to the connected extremes.

(*c*) But even supposing that this could be done, and the perpetual oscillation between neutral and extremes could be established, where is the contradiction in this that could take us on to the next category? It may be said that this continual oscillation is a False Infinite, and that a False Infinite is in itself a contradiction. But this, I think, is a mistake. There is nothing contradictory about a False Infinite except in those cases where the completion of the series is required—when of course there is an obvious contradiction. It was for this reason that the False Infinite involved a contradiction in the category of Being-for-another. A, by the hypothesis, was determined. But it was determined by B. So it could not be determined till B was determined. B was determined by C. Therefore, till C was determined, B could not be determined, nor, as a consequence, A. But C was determined by D, and so on *ad infinitum*. A, therefore, could not be determined till an endless series was ended. Therefore it could not be determined at all. But, by the hypothesis, it was determined, which gives a contradiction.

Here, however, the infinite series is not wanted to determine its first members. It can never be completed, but there is no contradiction if it *is* never completed. And therefore there is no ground for the transition to the next category.

I should venture to suggest a reconstruction of the category. The essential characteristic of it should be, I suggest, not the abolition of all differentiation, but, as appears in the transition from Absolute Mechanism, the reference of all the differentiation to a unity which is itself single and undifferentiated. The emphasis, you may say, is changed. In Absolute Mechanism we had, indeed, a unity of a sort, for we had a system. But the fundamental point was the plurality of objects, with their relations, and the unity was only derivative—an effect of the plurality. And in Chemism, on this theory, we shall have a differentiation of relations, but all springing out of, referred to, and dependent on a unity which is taken as devoid of plurality.

In this form the category, as we have seen, follows quite naturally from Absolute Mechanism. The latter had attempted to explain reality by the interaction of a plurality of Objects. But the relations, belonging as they did to the Objects jointly, so far from distinguishing one Object from another, rather merged them together, and as the Objects had no distinguishing qualities except their relations, there was nothing to keep them apart. They ran together, and were fused in one single Object, occupying the whole extent previously occupied by the system of Objects, and of this Object all the relations became an attribute.

This then would be the process by which we arrived at the new category. The inadequacy of such a point of view, and the necessity for transcending it, are obvious. It is quite impossible that a mere unity, without any plurality about it, should be able to account for a plurality. This would involve a spontaneous self-differentiation of the unity which Hegel, in agreement with common-sense, would hold to be impossible. If you put nothing but unity in, you can get nothing but unity out. The growth of the dialectic does not give an example of the contrary. In the first place the dialectic, though it develops, never differentiates itself (cp. MIND, 1897, p. 357). In the second place, as I have pointed out elsewhere (*Studies in the Hegelian Dialectic*), the real spring of the dialectic movement lies in the implicit concrete truth, which it proceeds to render explicit, and not in the already explicit abstraction from which it starts. Thus in the growth of the dialectic, as elsewhere, it remains true that something can never grow out of nothing. Now the category of Chemism involves an attempt to get something out of nothing. The unified plurality of the relations is to be accounted for by the bare unity of the base. And this would leave the plurality unaccounted for and illegitimate.

The undifferentiated unity of the base of the relations can thus no longer be maintained. At the same time, it is impossible to get rid of it by simply taking this base as plural. For then we should be back in the category of Absolute Mechanism, and this we have already seen to be unsatisfactory. It is clear that we can only get out of the difficulty by finding a new category which shall synthesise Mechanism and Chemism, and remove the defects of both.

This is the argument I should propose to substitute for Hegel's treatment of Chemism. It so far resembles his that the abstract and excessive plurality in Mechanism is replaced here by an equally abstract and excessive unity. But it is by no means the same category. It is true that there seems another resemblance in the way in which, in each case, the argument ends with an oscillation—in Hegel's view between the neutral object and the extremes, in my view, between the standpoints of Absolute Mechanism and Chemism. But this resemblance is deceptive, for there is a vital difference between an alternation of categories and a category of alternation. Now Hegel's view, as I said before, is a category of alternation—if we look at things by his category of Chemism we regard the things themselves as oscillating between different states. The alternation, in my view, on the contrary, is nothing but that state of perplexity and contradiction which always arises when a Thesis and Antithesis, which are contrary to one another, have been developed to their full extent, and the Synthesis, at the same time, has not yet presented itself for their reconciliation.[1] Each category, because of its inherent contradiction, leads to its contrary, and rest can only be found in the Synthesis.

With this change there disappears whatever appropriateness the name of Chemism originally possessed. Indeed, it seems probable to me that the associations of this name are responsible for Hegel's own unsatisfactory treatment of the category. Since the category before it was most appropriately named after Mechanics, and its successor was closely connected with the idea of End, it was tempting to carry the analogy one step farther, and name the middle category from Chemistry. And, having done this, Hegel, I venture to think, for once distorted the category to suit the name. The conceptions of the neutral object, and of the oscillation between the neutral object and the connected extremes, have

[1] Of course it is not the case that every Antithesis stands to its Thesis in the relation of a direct contrary. Indeed, a triad of this type is seldom found so near the end of the dialectic.

nothing, that I can see, to do with the course of the argument before or after them, but it is manifest at once that they are closely analogous to chemical processes.

I do not venture to rechristen the amended category. But I will point out that a good example of it might be found in Hegel's own exposition of the Hindu religion. Here all the multiplicity and differentiation of the world is referred to and accounted for by a unity so abstract as to explain nothing, and in reality to be nothing—for the difference between such a Pantheism as this and Bouddha's Atheism is infinitesimal. Such a blank unity is totally unable to explain the plurality, and accordingly is only really prominent in those moods of the worshipper when he can fix his entire attention on the unity of things, ignoring their differences. When the latter are to be taken into account, he has to regard some sort of difference as fundamental, thus going back to the category of Absolute Mechanism. And, because the unity declines to admit the reality of this difference, it is impotent to control it in any way. It is, as Hegel points out, for this reason that a religion which is on one side the most restrained and rigid monism, is on the other the wildest and most unrestrained polytheism.[1]

We have seen, then, that our attempts to make either differentiation or unity fundamental by itself have broken down. Reality is a differentiated unity—or a unified plurality, and neither element can be deduced from the other. We must therefore adopt a theory of reality which puts both elements on the same level, and makes them both fundamental. Reality must be a unity differentiated into plurality, for which the differentiation and the plurality are as essential and necessary as the unity. Or it can be expressed from the other end—reality is a plurality combined into a unity, for which the combination and the unity are as essential and necessary as the plurality. This gives us the category which Hegel calls—

TELEOLOGY.

The advance in this category on the two which precede it does not lie in its recognising the existence of both unity and multiplicity. For Mechanism recognises, admittedly, a unity as well as a plurality, and I have endeavoured to show that Chemism recognises a plurality as well as a unity. The difference is that the two lower categories take, each of them,

[1] *Philosophy of Religion* (*Werke*, vol. xi., p. 380. Speirs' trans., vol. ii., p. 44).

one of these two ideas to be fundamental, and tries to account for the other from it, while Teleology recognises both of them to be equally fundamental.

In doing this Hegel attacks one of the strongest prejudices of the "non-speculative" mind. There are few things of which common sense feels more sure than that the same reality cannot be both One and Many. There may be a little differentiation in the One, a little unity in the Many. But that anything should be fundamentally and necessarily as much One as Many, as much Many as One, seems to it to be impossible. Against this prejudice of the natural man the dialectic continually directs its forces, but at this point more explicitly than ever before. We have here—even more distinctly than at the end of the Subjective Notion—the idea of a self-differentiating unity, by which is to be understood, as I have explained elsewhere,[1] not a blank unity which produces differentiations out of its inner nothingness, but a unity which, not through some external accident, but from inner necessity, is only to be found in a multiplicity which is as fundamental as itself. The term self-differentiating unity is rather misleading. The active participle suggests a logical if not a temporal process, and so leads us to suppose that the unity is the agent which produces the difference, and is therefore prior to it. This might to some extent be remedied if we were to realise that it would be just as true to say a self-unifying differentiation as a self-differentiating unity, though the suggestion of action would still remain inappropriate.

This doctrine is interesting as being one which has, mainly through the influence of Hegel, penetrated from metaphysics to everyday life. Common sense is not quite so certain as it used to be, that the One cannot also be the Many. The idea of a self-differentiating unity, generally under the more picturesque name of an organic unity, has worked itself into a place among the furniture of the average mind, and is perhaps being used with rather reckless freedom. Still it must be regarded as one of the most valuable of the presents which metaphysics has made to an ungrateful world.

Hegel departs considerably from the common usage in the meaning which he gives to Teleology, and still more with End and Means, which with him signify respectively the aspects of unity and plurality. What we generally mean by Teleology is what Hegel calls "finite and outward design," in which some independently existing object is used by some

[1] Mind, 1897, p. 356.

self-conscious being as a means for carrying out some plan which he has conceived. In "outward design" the Means and the End can exist independently—for the End can exist as a purpose in the mind of the agent, even if there are no possible Means to carry it out; while the objects which are used as Means do not derive their entire existence from that use, but existed before the End was formed, and would still have existed if it had never been formed.

It is clear that this is entirely different from the idea of Teleology at which the dialectic has now arrived, in which the End has no existence, and indeed no meaning at all, except in so far as it is manifested in the Means, while the Means are equally devoid of meaning and existence except in so far as they carry out the End. Hegel's Teleology corresponds, as he remarks himself, to Kant's idea of Inner Design; the best example of which is the unity in multiplicity of an organic being.

The use by Hegel of the words End and Means here seems to me very unfortunate. For, in ordinary language, the cardinal point in the significance of these terms is that the Means, as Means, exist only for the sake of the End, while the End exists for its own sake. The End has ultimate value, the Means only derivative value. Now there is nothing of this sort in the Hegelian use of the words. The whole point of the category is, as we have seen, that the plurality, which he calls the Means, is just as fundamental and important as the unity, which he calls the End. But the contrary is almost irresistibly suggested by the associations of the words, and even Hegel himself seems sometimes to forget in what a different sense from the common one he is professing to use them. To his use of the word Teleology there seems much less objection.

It is to be noted that, using the words in Hegel's sense, there can be no such thing as an unrealised End, or inadequate Means. An End only exists at all in so far as it is the unity which unites the Means—*i.e.*, which is realised by them, and, conversely, the Means only exist in so far as they are unified by, and express, the End, and can therefore offer no resistance to its realisation.

At the same time we must notice that with this use of the words the conception of a realised End loses altogether that implication of *value* which it has when the words are used in their ordinary significance. In the latter case, the conception of a realised End involves value, because, in the first place, it has a distinct meaning. An End entertained is not necessarily realised, and the realisation brings in a

fresh element. And that fresh element is the harmony between the purposes of a self-conscious being on the one hand, and the surrounding reality on the other. This certainly involves pleasure, and, if pleasure be taken as the good, or if the End was in itself moral, it also involves good. And thus, with "finite and outward" Ends, their realisation takes us into the world of values, since, at the lowest, the realisation implies that some sentient being has got what he wanted.

But with Ends, in the Hegelian sense of the word, it is quite different. In the first place, to say that an End is realised is now, as was explained above, a mere tautology. And, in the second place, an End, in this sense, is only the inner unity of existence. It has no necessary relation to any conscious being, and, consequently, no implication of value, which is an unmeaning term apart from consciousness.

Is there one End in the universe or more? Are we to consider all reality as a single system held together by a single End, or is there a plurality of Ends—embracing, of course, a still greater plurality of Means? Hegel does not make this point clear. It seems certain to me, however, that we must regard all reality as forming a single system with a single End. In the first place, if there was more than one End they would be simply juxtaposed, without any connexion, since under this category a plurality can only be united as Means to an End. But juxtaposition without connexion is a standpoint which the dialectic has long ago transcended.

The same view is imposed on us by the manner in which the idea of End has been reached. Each system of Absolute Mechanism was transformed into a system of Chemism, and that, again, into a Teleological system. It would seem, then, as if there ought to be a Teleological system for each system of Absolute Mechanism, of which there were many. But it must be remembered that each of these Mechanical systems comprised just the same Objects—since each of them extended over the whole universe. The only difference between them lay in the fact that each of them took a different Object for its centre. Now the centre of union of a Teleological system is not one of the Objects which form the system, but the unity behind it which Hegel calls the End. And therefore all these systems of Ends and Means will turn out to be the same system. For the Means are the same in each case —since each system has the plurality of the whole universe as its Means—and the same Means cannot possibly have two different Ends. If we call the Means x, and the Ends A

and B, we see that, A and B being different, x cannot manifest A by the same qualities with which it manifests B. There must therefore be some part of x which does not manifest A, and some part which does not manifest B. That is to say, neither A nor B could be the true End of x, since neither of them would correspond to the whole of it, and the part of x which did not correspond to either End would not be unified by it.

Only one End therefore can be capable of uniting as its Means all the plurality of the universe, and as no system can stop short of embracing the whole universe, we must regard the whole of reality as forming a single system, with a single End.

The conception of End—in the Hegelian sense—may perhaps be profitably compared to Lotze's conception of the unity which he calls M, by which all the particular Things in the world are united. At first sight, indeed, it might seem as if this M could be better compared with a system in Absolute Mechanism. It is easy to take it as if it were altogether secondary to the particular Things, and as if its only function was to pass on to one Thing the impulses received from another. But we must remember, first, that without M the Things would have no relations, and be absolutely isolated—that is, would not exist at all. Therefore it is absolutely essential to the Things, and not secondary. And, secondly, Lotze asks us to "admit the supposition that the susceptibility, which we had to recognise in every finite Being—a susceptibility in virtue of which it does not experience changes without maintaining itself against them by reaction—that this belongs also to the one, the truly existing M" (*Metaphysic*, section 70). Now this gives M a nature of its own. No doubt this nature is only expressible in Things, but still it is not a mere consequence of Things. The unity is as essential a side of the truth as the plurality. And this is very like the category of End. (I may be permitted to remark in passing that this ascription of a definite nature to M seems absolutely incompatible with the view, sometimes held, that Lotze can be correctly described as a Monadist.)

Subjective End.

The full unity between Means and End, however, is not attained till we reach the last division of Teleology. At first they are regarded as of equal importance, indeed, and as closely united, but yet as being still separate entities in the sense that each has a nature of its own, though it could

not exist except in conjunction with the other. This view dominates the first two subdivisions of Teleology, the first of which, called by Hegel the Subjective End, regards the Means as possessing no definite quality of their own except that they are a plurality. One Object is as good as another in any place, or for the manifestation of any particular part of the End. If in an Object A there is manifested the End in the shape of x, that does not mean that there is any special fitness in A to manifest x. B, or any other Object, would have done quite as well. All that the Objects are wanted for, is to provide a plurality. All the content is in the End alone.

This is naturally the first form the category would take. For the immediate cause of the breaking down of the category of Chemism was that it was impossible to get the plurality out of unity. So that it was natural at first to look elsewhere only for the mere element of plurality, and to think that that once given, the unity could supply all the rest.

The contradiction involved in this category is not hard to discover. For, while it asserts the Means to have separate natures, apart from that End which they carry out, it defines the Means so as to reduce this separate nature, and consequently the Means themselves to nothing.

The interconnexions of the various Means with one another form the End, which the Means carry out. The End is the unity of the Means, and it is clearly to the End that these interconnexions, which unite the Means to one another, must be referred. Now the present category asserts that one Means would always do as well as another in carrying out the End, consequently, that the intrinsic nature of the Means has no relation to the End. It follows that the intrinsic nature of the Means has no relation to the connexion between the different Means. These connexions, however, form the whole of the external nature of the Objects which are considered as Means, and we saw, when we were dealing with Absolute Mechanism, that the inner nature only expresses itself through the outer. Therefore this intrinsic nature which the Means are asserted to possess can neither be their outer nor their inner nature—and what else is there left for it to be? Clearly nothing. To suggest that anything has a core of its own apart from and unaffected by its relations to other things would be to go back to the earlier categories of Essence, whose insufficiency has been demonstrated much earlier in the dialectic.

The one quality, indeed, which the Means might seem to

possess, apart from the End, was the plurality by which they were enabled to break up the unity of the End. But, if they are taken apart from the End, even their plurality vanishes. For the End is their only unity, and plurality without *some* unity is impossible. You can only take things together if they have a unity, and if you do not take them together, they are not a plurality. If we consider each of the Means without the End it is absolutely isolated, and in absolute isolation it can have no plurality. It is a mere blank unity —*i.e.*, nothing.

To suppose, then, that the Means have no intrinsic adaptation to the End, is to destroy the possibility of their having an intrinsic nature at all. If, therefore, they are still to retain any externality whatever to the End, that externality must be harmonious to the End. The private nature of each Means must simply consist of its fitness to carry out the End—for we have seen that there is nothing else for it to be. With this change, it ceases to be indifferent which Means are employed in carrying out a particular part of the End. Only those Means can do so which are fitted for the task by their own nature. We thus approach more closely in one respect to the ordinary significance of the word Means, which includes some special capability in the Object to carry out the End. It is for this reason that Hegel calls the next division of Teleology—

Means.

Of course, here as elsewhere, we must remember the special meaning which End has for Hegel. Though the Means have a certain externality to, and distinction from, the End, yet it is not supposed that they could exist apart from it. The position throughout Teleology is that the Means could not exist if they did not embody the End, nor the End if it were not embodied by the Means. Accordingly, to speak here of the Means as *fitted* to embody the End may be misleading. It is not a mere potentiality, as when, in the non-Hegelian meaning of the terms, we say that a knife is the means of committing murder. They would not be Means unless they *did* embody the End, and when we speak of them as being fitted for it, we only mean that their intrinsic nature co-operates in the process, and is not to be considered, as it was in the last subdivision, as indifferent to the End.

How, we must now inquire, does this category manifest its inadequacy? Hegel gives two demonstrations of this, the first of which is to be found in the *Greater Logic*

only, while the second is to be found in the *Smaller Logic* also. They may be said to be based on the same general principle, but are perfectly distinct points and must be treated separately.

In the first (*Werke*, vol. v., p. 229) he says that if we accepted the position of this category we should be forced to insert, between the End and the Means, a second Means, and then, between the End and this second Means, a third Means, and so on *ad infinitum*, and that this involves a contradiction. Let us expand this argument rather more than Hegel does himself, and examine its validity.

If the End and the Means are to be taken as distinguishable entities, then it is clear that each of them must correspond to all the conditions which are necessary to the existence of any entity. Now we have seen, over and over again, in the course of the dialectic, that no entity of any sort can be a blank or undifferentiated unity. Therefore, the End cannot be such a unity. It must be differentiated. This, indeed, has already been admitted, and the work of the Means is to differentiate it. But—and here the root of the contradiction appears—if the End has an existence distinguishable from the Means, it must have a differentiation distinguishable from the Means. Now the End is fundamentally a unity, and we have seen in the breakdown of Chemism that a unity cannot produce its own differentiation, but must have an element of differentiation which is correlative to, and not derived from, the unity.

Within the End, therefore, and apart from the Means, there must be an element of differentiation. But the definition of a Means, as we have seen, is just the plurality which differentiates a unity in this way, and this element of differentiation will be a second Means, between the End and the first Means. And now that it is a Means, it will, by the category which we are considering, be distinguishable from the End. By the same reasoning as before, the End will require some differentiation independent of the Means, and this differentiation will become a third Means, between the End and the second Means. And this process will go on *ad infinitum*.

Such an infinite process as this is clearly a sign of error. By the hypothesis the End and the original Means are united. But for this union an infinite series of intermediate Means are required. The End and the original Means can only be united when this infinite series is completed—that is to say, they never can be united. And so the category is contradictory.

Hegel's second argument (*Enc.*, section 211, *Werke*, vol. v., p. 230) is that the Realised End will, if we adhere to our present category, be nothing but a Means, that it will consequently require another Realised End beyond it, which in turn will be nothing but a Means, and so on *ad infinitum*. This also will require some expansion.

When we use the word End in its common and un-Hegelian sense, there is a clear distinction between the Means and the Realised End. A saw and a plank may be taken as Means to the End of making sawdust, but no one could mistake either a saw or a plank for the actual sawdust which is the Realised End. But in the Hegelian sense of End the case is different. For here the Means is not an Object which might be made to subserve the End. It is an Object which does subserve it, and subserve it necessarily and by its intrinsic nature. The Means therefore is an Object whose nature is such that it manifests the End. (If we are speaking of a single Object it is better, except for brevity, to say "which participates in manifesting the End," since of course an End can only be manifested in a plurality of Means.)

Now what is the Realised End? Is it anything more than this? It can be nothing more. The only form a Realised End can take is that of an Object whose nature is such that it manifests the End. And therefore, for Hegelian Teleology, there is no difference between the Means and the Realised End.

This conclusion we shall find later on to be the truth. But it is inconsistent with our present position, and the attempt to combine the two produces a contradiction. For the Realised End is the union of the End and Means, and, if these are taken as in any way distinguishable, it cannot be the same as either of them. Hence when we find that our Realised End is identical with the Means, we cannot regard it as really the Realised End. If it is one extreme of the relation it cannot be the union of both. We take it then simply as the Means, and look for another Realised End beyond it. (We may remark, for completeness' sake, that it would have been equally possible to take it as the Realised End, and then to look for another Means to mediate between it and the End. The course of the argument would be similar.) But the new Realised End would also necessarily be identical with the Means, for the same reasons as before, and our search would have to be continued *ad infinitum*. Such an infinite process would involve a contradiction, for it is the whole nature of the End and Means

to be united, and they can never be united, since it would require the completion of the infinite process.

The category which involves such contradictions must, of course, be transcended. And we have already seen how this may be done. The whole of the difficulty arose from the fact that End and Means were taken as separate realities. It was this that forced us to insert, between Means and End, an infinite series of new Means. And it was this which gave us the choice of either inserting another infinite series of Means between Means and Realised End, or else of prolonging the series of Means forward in the vain attempt to reach a Realised End which was different from a Means. We can get rid of the contradictions only by dropping our supposition that End and Means are in any way separate realities. We have known all along that they would only exist if they were connected. But now we are driven to the conclusion that they cannot exist if there is anything in either of them *except* its connexion with the other. The whole nature of the End is just to unify those Means, the whole nature of the Means is just to manifest that End. With this we pass to the final division of Teleology, to which Hegel gives the name of—

Realised End.

The appropriateness of this name lies in the fact that the Realised End is the unity of the End and Means, and that we have now come to the conclusion that End and Means are not two realities connected with one another, but two aspects distinguishable within a single reality. The unity of the two sides is not built up, as previously, from their difference, but the difference is an analysis of the unity. And thus this category takes its name from the unity of the two sides—that is to say, from the Realised End.

We have thus arrived at the close of the Objective Notion. We have overcome the unbalanced abstractions of Mechanism and Chemism, and, instead of a mere plurality or mere unity, have found the basis of all reality in a reality of which plurality and unity are correlative and complementary aspects—each without any claim to an existence apart from its union with the other.

The Objective Notion ends with the conception of a self-differentiating unity, as the Subjective Notion had ended before it. But the conception is now a far deeper one. The self-differentiating unity of the Disjunctive Laws of Nature only reached the proposition that every A must be either B, C *or* D. But it was still possible that they were all B, and

that AC and AD were unrepresented species. If all carnivora must be lions, tigers, or wolves, that would not prove that any of them were tigers or wolves. If the world had been so differently constituted that there were no tigers or wolves, that would have made no difference to the lions. (That is to say, it would have made no difference to them from the point of view of the Subjective Notion. The lions would not be affected by the disappearance of another subdivision of the class to which they belonged. In so far as they were objects in the same world, any change in the tigers would affect the lions, but that does not belong to the Subjective Notion.)

It is quite different with the self-differentiating unity of End. There A is B, C, *and* D—not B, C, *or* D—for it is only in all the Means taken together that the End is manifested. Thus End and Means form a unity whose parts completely determine one another. The End determines the Means, since only one particular set of Means could express a given End. And, no less, the Means determine the End, since, when the Means are given, there is only one possible End which can be manifested by them. And, lastly, the various Means reciprocally determine one another. For none of the Means could be altered without altering the End, and this would alter all the other Means.

With this the Objective Notion closes. The next step will take us into the last subdivision of the Logic—the Idea.

IV.—TESTIMONY AND AUTHORITY.

By A. F. Ravenshear.

I.—The Claims of Testimony.

In the best scientific work, even as in the worst, much must be taken upon trust; on the authority of the competent observer, skilled instrument maker, or original investigator. The Chemist, in establishing the existence of a new compound, or defining its properties, relies to a great extent upon the determinations of others as to the atomic weights, formulæ, densities, specific heats, boiling-points, refractive indices and other coefficients of the auxiliary substances or reagents he employs. In much of his apparatus—weights, balances, polarimeters—he relies upon the work of the instrument maker. The Physicist in like manner employs all such results as are in general repute—tabulated densities, temperature-coefficients, elasticities, weights, resistances. The Astronomer makes use of the observations of his predecessors, as well as of his contemporaries in distant observatories. The acceptance of observations and descriptions in this manner is still more marked in geology, zoology, botany. The disposition of rocks in various countries and the occurrence of minerals; the kinds and distribution of plants and animals; all are to any given systematiser largely matters of report.

It might indeed seem that, in physical science, time and opportunity alone are needed to enable a man of sufficient energy and capacity to do the work of a hundred observers. But in psychology it is far otherwise; for, whatever his capacity, one man knows only one mind. Reliance upon others in physical science may be merely unavoidable; but to Psychology it is essential.

Inductive Logic, in so far as it claims to be a theory of Scientific Method, ought then to include a theory of Testimony and Authority. But in the current treatment this seems to a great degree to be lost sight of. We are presented with a theory of scientific method conceived as followed out by an investigator working alone, and almost from the

beginning. It is not, indeed, explicitly laid down that every man must be his own Observer, Speculator, Experimenter, Calculator, and Critic. The complex interchange of opinion, observations, experimental results, criticisms—the division of labour—that constitutes the life of science, is simply dropped out of sight.

Testimony finds its chief use in the establishment of individual facts. A line of reasoning may be reinvestigated; an experiment may be repeated. But for knowledge of specific facts or events in the past, or occurring outside one's personal range, each is perforce largely dependent on testimony. Such knowledge must in great part be derived from persons present at the particular time and place of the occurrence. In the current descriptions of the method by which individual facts may be logically proved, the use of testimony is, however, scarcely referred to. In Mill's *Logic*, for instance, the method is thus described:[1] "When the phenomenon is within the range of present observation, by observation we assure ourselves of its existence; when it is beyond that range and is therefore said to be absent, we infer its existence from marks or evidences. . . . The simple existence . . . is inferred from some inductive law . . . we prove the existence of a thing by proving that it is connected by succession or coexistence with some known thing." It would be a somewhat forced interpretation of this passage to suggest that it covers the case of testimony as to a matter of fact. It might, perhaps, be said that the testimony itself is some known thing connected by succession or coexistence with the fact it reports: and that the inductive laws to which reference is made are laws relating to the conditions of trustworthiness of testimony. But to argue thus would seemingly be to adopt as a guiding principle the oft-quoted aphorism that 'language is given us to conceal our thoughts'; for even if *en*closed in the passage cited, the idea can scarcely be said to be *dis*closed.

In an indirect manner Testimony is doubtless alluded to in Mill's discussion of the "grounds of disbelief";[2] and in the dictum "whatever contradicts a well-grounded induction is to be disbelieved". But this alone is not sufficient. We ought to determine not only what testimony must be rejected, but under what conditions it may be accepted. Between these two is a broad neutral zone within which we can do nothing but suspend judgment.

It seems likely too that some logicians have regarded

[1] Chap. xxiv., § 1. [2] *System of Logic*, chap. xxv.

testimony as sufficiently dealt with in the discussion of Observation. In Venn's *Empirical Logic*,[1] for example, a passing allusion is made to testimony under the head of Observation. This is to look upon the acceptance of testimony as observation or experiment by deputy; but it clearly results in an incomplete treatment, in so far as it supposes us already furnished with some means of distinguishing the deputies that are trustworthy from those that are not.

Still, since the acceptance or rejection of testimony is a process of selection of the material of knowledge, it would seem that even though credence in testimony does not fall wholly under Observation, yet it ranges alongside it. But while Observation and Experiment are directed towards phenomena, the selection now in question is from among statements or assertions.

There is no ground for denying 'credence'—if we may use this term to denote critical acceptance of testimony or authority—a position co-ordinate with Observation in the supposition that it must necessarily be less certain than first-hand observation, or as it might be put less 'logical'. That testimony may, in certain cases, give even greater certainty than personal observation must be familiar to every one who recognises the great inequalities existing between different individuals in their respective powers. A person may well derive, perhaps in some unfamiliar department of knowledge, a degree of certainty from the affirmation of the qualified expert far surpassing anything he could reasonably derive from his own imperfect or untrained observation.

But Testimony is involved in Inductive Logic in a far more intimate manner than this. It might almost be said that Testimony is necessary not only to the establishment of the *universality* of the principle of the Uniformity of Nature, but even to the perception of *any* uniformity in the bulk of Nature's activities. Along with clearly exhibited uniformity in certain respects, Nature presents infinite variety. Some uniformities only are patent, most are disguised. We see that heavy bodies fall when free, but a balloon rises. The same piece of wood, however often we try it, will always float; but that a friend on one occasion, say, took wine is no guarantee that he will accept the same thing on another occasion. In such instances it is easy to specify the uniformities underlying the apparent irregularities; and in doing so we clearly see that in these as in other cases the

[1] *Empirical Logic*, p. 111.

perception of uniformity is the result of a selection and emphasis of certain features, commonly not noticed in our early acquaintance with the matter, which are brought to light by a comparison of those experiences with others. This emphasising of certain features and neglect of others —the process of analysis or abstraction—is not only a laying of stress on something in an isolated experience, but is also a selection and emphasising of other experiences. The balloon—an apparent irregularity to the rule that heavy bodies fall when free—is seen to exhibit uniformity when experience of hydrogen is brought into view; and the different behaviour of our friend under similar external circumstances shows uniformity when experience of varying bodily condition is brought into line with it. But these other experiences that must be employed to force the given experience to yield up its uniformity may not be within the reach of any one individual. The uniformities shown in the return of certain of the comets are visible only to those who know how to rely upon records many hundred years old. The uniformities brought to light by statistics are nothing to him who cannot depend on an army of coworkers. If the individual indeed were to confine himself strictly to his own experience, Nature, far from seeming universally uniform, would seem infinitely capricious. The universal uniformity of Nature can be seen only by an analytical use of the experience of others as well as our own. Mere addition of obvious uniformities derived from other persons' experience might perhaps give a restricted field of uniform action; but only by an intussusception of each other's experience does the universal extent of that field become known.

But in laying stress on some features we ignore others. What of those we neglect? the errors of observation, the individual variations when we are dealing with averages or elimination of chance, the 'irrelevant' circumstances which make up the difference between the abstract conception and the concrete experience. Is nature uniform only as far as the limits of errors of observation? This question scarcely needs an answer; but it furnishes an illustration of the preceding remarks on the use of the experience of others in the proof of Nature's uniformity. These neglected things are never intended to be neglected for ever. The ideally complete theory would take account of them all. Wherever at present this cannot be done the reason is that the appropriate experiences by which their apparent irregularity and caprice could be converted into law either have

not occurred or have not been noticed in the requisite relation.

The facts capable of introducing order and uniformity into the irregularities and caprices of our own individual experience are then so often not facts of that experience, or are, if there, so often overlooked, that the emphasis and selection constituting the perception of uniformity must to a large extent be performed by deputy; a substitute for direct experience in the interpretation of other experience must be found in the use of Testimony.

To this claim a seemingly strong objection, which has oftentimes been pitted against the empirical basis of Induction, might be urged thus: How can criteria of testimony be included among the principles of induction when they have themselves to be established by induction? Only under misconception, perhaps generated by false analogy to the alternate deduction of premiss and conclusion each from the other, could this be thought to be illegitimate. The apparent difficulty disappears as soon as we distinguish the successive stages in the growth of the power of reasoning inductively. First we find the inductive processes implicitly occurring in mental operations long before they become explicit. On a higher plane there are the explicit and fully developed processes. Lastly, the organised logical theory in which the principles are enunciated, their interdependence exhibited, their legitimate extent and necessary limitations defined; by which they are reduced to mutual consistency and precise accordance with experience. The perfecting of the principles is the proper business of Logic, not the origination of the processes. Exact principles of induction result from the working of the primitive processes, as, in the grinding of lenses, a truly spherical form results from the mutual attrition of surfaces initially imperfect. If the relation between inductive processes and logical principles were like that between conclusion and premiss the objection would be fatal. But it is not so: rather does Logic take the imperfect processes, grind them, so to speak, one against the other, and hand them back as nearly as may be in the form of perfected principles.

II.—Criteria of Trustworthiness.

Excessive credulity and excessive incredulity have each been fixed upon as the marks of ignorance and simplicity. Within the narrow circle of personal experience the uninformed person exhibits obstinate prejudice; outside that circle childlike dependence upon others. A theory of testi-

mony aims at showing how to steer an even course between these two extremes. In a well-informed mind the modes of belief here seen in sharp contrast both enter in modified forms. Each is to be seen in almost every estimate of the truth or falsity of the statement of another.

Every one believes himself to have some sort of justification, however obscurely apprehended, in accepting or rejecting a statement resting on testimony or authority. The precise nature of this justification, when valid, is the object of our present inquiry. In so far as an investigation is first-hand, the conditions to which the evidence must conform in order to constitute proof are those formulated in Logic. In so far as we depend upon acquaintance with the subject, grounds of disbelief are also discussed in Logic. But the questions now proposed relate to inquiries that for any reason are not first-hand; to those inquiries in which either from necessity or convenience reliance is placed upon the work of others. To what conditions then must testimony or authority conform in order to be reliable? What safeguards can be devised in order to lessen risk of error in judgments as to matters not within our own cognisance? These are the questions that must be answered by a logic of testimony and authority; and an attempt to give a sketch of the answer is made in the following pages:—

The Legal and the Mathematical treatment of the Subject.— The nearest approach to a consistent body of principles regulative of the admission and indicative of the trustworthiness of testimony might be expected to be found in the Law of Evidence. The work on that subject by the late Mr. Justice Stephen[1] shows, however, that it is scarcely to be found in the existing law in this country. Many of the rules as they stand at present are designed merely to facilitate the business of the courts—to regulate procedure and forms. Some are to limit the extent of inquiry, and some to safeguard the interests of strangers. Very few, strange to remark, aim directly and solely at securing reliability in the witnesses, or at setting up tests of trustworthiness—these are matters left to cross-examiners and juries. The rules, indeed, have mainly been framed to deal with the exigencies of judicial inquiry; and accordingly are more often narrower in scope and more often based on considerations of convenience than a purely scientific treatment of the subject from the point of view of Logic would permit.

[1] *Digest of the Law of Evidence.*

There are, nevertheless, some few examples of rules that might be looked upon as having been devised to attain reliability. Thus there are rules as to the necessity in a few isolated cases for corroboration—as in promise of marriage, charges made by accomplices, or in allegations of treason. There are the rules as to the 'competence' of interested witnesses, or those labouring under any infirmity. There is also the rule as to 'directness' of evidence—excluding hearsay except in certain very special circumstances. Lastly, there are the rules as to the sanction under which a witness shall speak.

These as will hereafter be seen are far from constituting an adequate list of safeguards. But it will be found that all except the last—which has reference to penalties and, therefore, does not here concern us—readily fall into line with and find a place among the criteria of trustworthiness indicated in the paragraphs that follow.

But if the Legal treatment of Testimony is inadequate, the Mathematical treatment seems positively useless. Problems relating to the conflict and concurrence of testimony have commonly been regarded as belonging to the mathematical theory of Probability. The probability of the truth or falsity of the assertions of the several witnesses being supposed known, that of any matter which some of them affirm and others deny is by its aid deducible. The mathematical solution of such a problem is doubtless logically based upon the data—but only when coupled with numerous restrictions expressed or implied. But these are such as to make the theoretical witness so highly abstract a personage as to find no counterpart in nature, unless it be—as Dr. Venn humorously puts it—a bag containing black and white balls.

To apply the method to real witnesses, resuming Dr. Venn's argument in the *Logic of Chance*,[1] would require statistics of mendacity based upon a full classification of witnesses; and some means for identifying the class to which each witness should be assigned. It would also be necessary to assume—ignoring fact—that each person has a definite degree of reliability independently of the subject of testimony; or else to base the statistics upon a classification of matter as well as of witnesses. There would still remain even then the difficulty of determining on each occasion whether the witnesses were or were not independent or ever could be so absolutely; and lastly, the surpassing difficulty of deciding in how many ways each witness might go wrong.

[1] Chap. xvi.

The mathematical theory makes the evaluation of concurrent testimony depend upon the previous evaluation of individual assertions. It will, however, be submitted in the following pages that, to make the most effective use of corroboration, the reverse procedure should be adopted. We ought to start from the fact of corroboration, when we have it, and employ it as a means for distinguishing how far the conditions of trustworthiness have been satisfied by the individual witnesses. The inference is to be drawn from the nature of the corroboration. This method of dealing with concurrence of testimony, and with conflict, will, it is hoped, be found to be entirely free from the objections that may so forcibly be urged against the mathematical treatment.

Conditions of Trustworthiness.—It should be here noted that although for the sake of brevity the terms "witness" and "testimony" are employed, they are intended to apply to the conveyance of information of all kinds and in any form. The works of authors past and present, the deliverances of authority, writings and assertions of specialists and other investigators, the reports and descriptions of travellers, and recorded information from all quarters is to be kept in view. It does not seem easy to suggest a pair of terms that will fairly indicate all this; and the required extension of meaning must therefore be pressed into the somewhat specialised pair of terms here proposed. It may further be noted that testimony and capacity of particularly high value are commonly said to possess "authority"; and in what follows this latter term and its derivatives will be employed in accordance with this usage.

The first step, before tracing the bearings of corroboration, must evidently be to pass in review the conditions of trustworthiness of 'witnesses' considered singly. These conditions are not far to seek; the only point requiring remark being that the mode of derivation adopted must be capable of guaranteeing the completeness of the list.

In our examination of 'credence,' or the critical acceptance of testimony, we must take account both of the giver and receiver. Error must assuredly arise unless each of the two parties, the assertor and the hearer or reader, perform correctly the part of the operation that falls to him. Not only must the assertor speak truly, but the hearer must rightly understand. A presupposition to a consideration of the conditions that must be satisfied to justify us in relying on the statements of others is, then, that *the assertor's meaning must be correctly ascertained.*

Any discussion concerning possible safeguards against misinterpretation of the statements of others would take us into a region of logic bordering on that of definition. Let it suffice here to say that interpretation must be self-consistent; must neglect nothing in the data; must give full effect to the context—immediate, systematic and historical—and must not be limited to mere grammatical or logical analysis, but must take due account of the style and intention of the writer or speaker.

Let us turn first to the part taken by the assertor. It is clear that to impart information implies first the getting of it. The reliability of testimony depends not only upon the conveyance of the information being correctly performed, but also upon its having been correctly obtained; not only upon the veracity of the witness, but also upon his cognizance of the matter in hand. Two conditions or groups of conditions therefore might naturally be expected to unfold themselves; one set arising out of the process of conveying information, and the other from the processes of obtaining it.

Beyond these we should expect to find another if there be any influence likely to adversely affect equally both the acquisition and the conveyance of information. It is universally recognised that however careful and conscientious a person may be, yet the effect of interest may be to lead him unwittingly into error throughout the acquisition, the retention and the conveyance of information. To be free from such unseen influence in completeness is the unattainable ideal; but practical freedom from bias with regard to some particular matter is not so far out of reach. This relative *freedom from bias* is then one of the conditions that an assertor must conform to in order to be trustworthy.

In the process of conveying information there are evidently involved intention and capacity. A person will speak truly provided he wants to and can. Nevertheless a witness may be perfectly sincere, and yet fail to recall accurately the matter asserted; or even if he can do this he may still not succeed in expressing exactly what he has in mind. This factor then gives rise to two conditions—one that *the assertor must be sincere*, and the other that *he must be accurate in memory and expression.*

The great difficulty is, of course, to find out whether there is bias or insincerity in any given case. To a certain extent, as we shall see, corroboration deals with it; but if we are without corroboration there is nothing but to consider the circumstances under which the statements are made in

relation to the character of the assertor. This does not amount to saying that every one will be carried away if there be any inducement to deceit, but merely recognises that as some undoubtedly will, the evidential value of all uncorroborated assertion is thereby depressed.

As regards accuracy of memory and expression, the time that elapses after an occurrence before it is recorded or reported is one of the chief circumstances. Care would seem to be another. But it should be noticed that *carefulness* belongs rather to sincerity than to accuracy. Care is doubtless necessary to the attainment of accuracy, but that after all is only the way in which sincerity combines with ability in the production of accuracy. These two conditions will not be discussed at this point. The brief remarks already made are only intended to indicate the meaning of the phrases *condition of sincerity* and *condition of accuracy of memory and expression.*

The conditions arising out of the processes of obtaining information are also two. The ascertainment of facts, events and other matters of observation or experiment demands both means or opportunity for ascertaining them, and competence in observation, or judgment. The conditions that must be satisfied are then that the assertor must have had *sufficient opportunity or means for becoming acquainted with the matter asserted;* and that he must be a person of *skill or capacity adequate to the acquisition of the knowledge professed.*

The question is here again: How are we to know whether some certain matter is or is not within the cognizance of one whose testimony we are examining? This may sometimes be difficult to answer; but need not always be so. If we are unable in any given case to answer it satisfactorily, the testimony is of little value; but if we can, we are on the way towards its evaluation. In some cases the answer may be easy. We should naturally hesitate to accept as fact an account of an occurrence by some one we knew had not been present; or in accepting as fact the statements of some one volunteering to inform us as to what was passing in another person's mind, or to give us information as to any other matter that we believed to be beyond human faculty. Such considerations are summarised in the phrase *opportunity or means for knowing,* which is the name by which this condition will be mentioned in the pages that follow.

Special keenness or genius are of course not demanded unless the matter testified to renders them essential. But in many matters it is absolutely necessary to rely on the

expert in the arts of observation and experiment. We must be satisfied in such cases not merely that there has been no confusion between true observation and inference but of much more besides. In scientific experiment we depend not only on the observer's power of seeing, but on his skill in doing. We must be satisfied not only that nothing present was missed, but also that the contriving and operative skill of the observer were such as to ensure that everything that could possibly be present was present. Natural endowment of sense counts for much—keenness of eyesight, touch, hearing. But practice and experience are factors equally important, especially in those inquiries depending on manipulative skill or on the use of complex instruments or methods. Facts of this character must be understood in the following pages by the terms *skill* or *capacity*.

The conditions, as we have seen, then, on which the credibility of a single witness depends, supposing his meaning first to have been correctly apprehended, comprise (1) his freedom from bias, (2) his sincerity and care, (3) his accuracy of memory and expression, (4) his opportunities or means for knowing, (5) his capacity or skill relative to the matter in question. The relationship of the criteria to each other may be exhibited diagrammatically thus :—

- A. Those relating to the conveyance of information.
  - 2. Sincerity and care of the witness (conscientiousness).
  - 3. Accuracy of memory and expression.
- B. Those relating to the acquisition of information.
  - 1. Freedom from bias—or unconscious influences.
  - 4. Opportunities or means for knowing.
  - 5. Capacity or skill relative to the matter in question.

It may be admitted that testimony is of the highest authority if it is deliberately given by a sincere person having had opportunities for cognizance of the matter and adequate powers of observation or judgment, who is careful and capable of accurate memory and expression, and is free from the influence of bias. But in place of the apparently simple question, "Is or is not this testimony reliable?" there now seems to be a multitude of questions,

seemingly no easier to answer than the original one. That there may, nevertheless, be some advantage in thus splitting up the main question in the hope of some one or more of the subordinates ones being answerable is obvious. For unfavourable answers to the questions as to sincerity or opportunity condemn the testimony without more ado. A further advantage, however, becomes immediately apparent when we begin to take into account the subject of Corroboration. We may often with the aid of corroboration of one kind or another draw conclusions as to the component questions far more certainly than we could as to the whole question; and by an aggregate of testimony and other corroboration may in effect ensure that all the conditions have been satisfied that a single witness would conform to if perfect.

Corroboration.—The conditions of trustworthiness having thus been briefly enumerated, we are in a position to look more closely at the subject of Corroboration. This may take the form of concurrence—or conflict—of testimony, and confirmation by other evidence, which may either be internal or external. The various kinds of corroboration will be reviewed in the order named, beginning with concurrence of testimony.

As we have already seen, it is necessary in estimating the value of testimony to consider whether there is any want of sincerity or anything likely to breed unconscious bias in the mind of the assertor. To satisfy the conditions of logical proof on these points in the case of a single witness might be extremely difficult or quite impossible; but if the circumstances and interests of the individual witness, where there are several, are sufficiently varied, the difficulty disappears. If indeed there is known conflict of interest between the witnesses with regard to the matter asserted, and they nevertheless agree, we may safely infer that insincerity has not been operative with the bulk of the assertors. Since we are given a conflict of interest but a concurrence in statement, most of the assertors we are assured must have spoken against interest; whence bias or insincerity cannot have been operative in their several cases. *Bias and insincerity may therefore be eliminated by a concurrence of persons of sufficiently varied interests.*

In a less degree concurrence of testimony throws light on the extent to which others of the conditions of reliability are conformed to. We have seen that the value of testimony is largely dependent upon the sufficiency of skill or experience on the part of the assertor, on his powers of observation

and his opportunities for ascertaining the fact. The more varied the powers, experience and knowledge brought to bear on any question the more likely is the judgment to be well-founded. *Any assertion concurred in by persons of different training, habits, and point of view is likely to be accordant with a wider aggregate body of knowledge and experience than if made by one of them alone;* and is accordingly so much the more reliable than if it had no other support.

It is essential, however, in this case that the variety should be in knowledge or experience relevant to the assertion. This is an important part of the independence of the witnesses postulated in the mathematical treatment of testimony, and is perhaps more difficult of attainment than is a sufficient conflict of interest to eliminate bias and insincerity. Unfavourable cases are those in which it is not possible to obtain the requisite variety. An example may be easily imagined. Suppose we had the evidence of a number of men as to the colour of some object; and afterwards found out that they all worked in some industry productive of colour-blindness. The effect on their testimony would be much the same as though they had agreed to deceive, and we should naturally refuse to rely on their assertions even though we saw no appearance of collusion.

The remaining condition of trustworthiness whose relation to corroboration we have yet to mention is that of accuracy of memory and expression, and this does not seem to be touched by concurrence of testimony. On this, however, as well as on another of the conditions, light may be thrown by 'internal evidence' which has been adverted to as constituting another form of corroboration.

Rigid and thoroughgoing consistency in all parts—cogency of reasoning and absence of confusion—raise a presumption of accuracy and care. Even an occasional lapse as regards these characters is of no great consequence as invalidating the remainder; for wherever consistency and cogency *do* appear they are assuredly not the result of chance.

In the same way also that inaccuracy may be disclosed by inconsistencies of statement, a presumption of imperfect observation may be raised by a record that fails to distinguish exactly between results due to observation and those due to inference. Where these are not carefully discriminated in description and discussion there can be no certainty that they have not been confused in fact; and accordingly the work in which they appear cannot be regarded as fulfilling the condition that has reference to observation.

The third and last form of corroboration is that gained by

testing or verifying the statements by extraneous evidence—experiment or other means. Whenever this is resorted to we are approaching a new field. Just to the extent to which appeal is made to extraneous evidence we engage not so much in a deduction of reliability as in an inductive inquiry. It is true that a test may be applied merely here and there, perhaps as to accuracy, perhaps as to meaning, but such tests if sufficiently multiplied would in reality constitute an example of the full process of Induction. The hypothesis being that the evidence is true, it is established or overthrown by its agreement or otherwise with the tests applied.

Cross-examination as practised in the Law Courts—the most powerful weapon conceivable for exposing falsification—may indeed be regarded as a special case of this. It is impossible that any person should be aware, in framing an untrue story, of every discoverable fact that might have a bearing on it. Hence however fully he may harmonise his tale with all he knows, it is extremely unlikely that an exhaustive cross-examination would not bring to light some conflict with matters not known to the witness, although known to others. The 'verification' of the story in such cases fails.

Conflict of Testimony or Authority.—Up to this point complete concurrence of testimony only has been dealt with. But it is commonly recognised that 'substantial agreement coupled with circumstantial variety' is of more value than precise accord between a number of witnesses; since the latter imports a suspicion of collusion. Even when the variety in detail is considerable we may find that as to those parts in which there is no conflict the testimony is reliable. This is not, however, an example of true conflict, since we here conclude only as to portions in which there is accord. Cases of true conflict are those in which one of two inconsistent assertions is preferred on account of the superior trustworthiness of its source. To illustrate apparent conflict of the former kind, we may suppose that we have a number of opposing statements easily separable into allegation as to matters of fact and inferences therefrom. If then we find that the divergence is wholly or mainly as to the inferential portions, we have, other circumstances being favourable, good ground for concluding that the matters of fact are correctly stated.

In order to deal with true conflict of testimony as distinguished from apparent conflict—that is those cases in which the divergence is in detail or in matters irrelevant to what we wish to ascertain—we have to determine on

what conditions the superiority of one source of testimony to another depends.

Sincerity and absence of bias *may* belong to any testimony, but to "authority" or authoritative testimony they must. The possession of these characters does not alone guarantee its trustworthiness; but their absence—or a doubt as to their presence—does assure us of its *un*trustworthiness. The remaining characters—(1) accuracy of memory and expression, (2) opportunities for knowing, and (3) capacity—are therefore those on which the relative value or the grade of trustworthiness of testimony depends. For these may vary in degree without absolutely invalidating the testimony.

Where, then, there is direct conflict, which of the two opposing statements is to be preferred must be decided by determining which of the assertors or groups of assertors has been the more accurate in memory and expression, or has had the better opportunities or capacity for ascertaining the matter asserted. This account of the procedure to be adopted in cases of conflicting authority still, however, needs further amplification; for there are three characters to consider, and the weight of these perchance in any given case may not be all on one side.

It may happen for instance that great capacity is found coupled with small opportunity; or ample opportunities with relatively smaller capacity. Granted the bare minimum of each of these characters—without which the testimony would fall into the great class of the unreliable—can we fix the order of precedence in respect of their authority, of the several combinations that may occur? An attempt to do so soon discloses that their order must vary with the nature of the subject-matter.

Testimony may broadly be divided into (1) expressions of judgment or opinion, and (2) assertions of fact; and the latter into (*a*) matters of common observation or patent facts, and (*b*) latent facts, the subject of experiment or research. It is clear that capacity plays a chief part in the trustworthiness of judgment and research, while in the case of patent facts the reliability is chiefly grounded on the assertor's means or opportunities for knowing. Further, nothing beyond the bare minimum of accuracy in memory and exposition adds anything to the reliability in either case. In expressions of judgment or opinion, and in the description of facts disclosed by research, it would seem, therefore, that we ought to give preference to the authority of capacity, while in regard to patent facts we must conclude that authority is to be measured chiefly by opportunity.

There is a close relation between the subject of conflict of authority and the further question: What attitude must we assume towards authorities or groups of assertors that seem to contradict our own personal conclusions or experiences? This embodies in another form the main question that, as it has before been stated, a theory of testimony sets out to answer, *viz.*: How shall an even course be steered between excessive reliance on self, and excessive dependence on others? The preceding discussions seem to furnish us immediately with the answer. We must in thought each go down into the crowd—and deal with the case as one of conflict of testimony only—our own testimony against that of the others. The question is resolved into one of comparison of authority; and the answer depends on relative opportunities and capacities for ascertaining the matter in hand, considered with reference to the nature of the subject in the manner above sketched out.

Authority; the Expert or Specialist.—By the aid of the conclusions arrived at above we may attempt also to define the limits within which the argument from authority is legitimate.

Criteria of testimony, as we have seen, rise into primary importance in those cases in which reliance is placed on the statements of others either from *necessity* or for *convenience*. How much we shall concede to convenience in any given case is clearly not a question for Logic; and the logical interest accordingly centres about the claims of necessity. We wish then to distinguish precisely between those cases in which we must of *necessity* rely upon others, and those in which we may examine the reasoning, criticise the evidence, and trace out for ourselves the dependence of the conclusion upon observation and experiment.

This we shall find is easily accomplished by the aid of the obvious distinction between simple facts of observation or experiment, and critical judgments formed on complex considerations. The facts of observation cannot from their nature be repeated and examined at will. We must wait an opportunity for observing the event; and that opportunity may never be ours. In matters of experiment also we are dependent on laboratories, observatories, and on the skill and co-operation needed for making use of them. Therefore must we in matters of simple observation and in matters of experiments often of necessity rely upon testimony. This necessity is in general merely practical as regards the results of experiment, but is absolute as regards specific events in the past or outside our own range of observation.

In results arrived at by reasoning on the facts of observation and experiment we are, however, not under the necessity of relying wholly upon others. The reasoning admits of being dissected and critically examined. It is not, like an experiment or observation, an event limited to some particular place and time; but is capable of repetition merely at the expense of intellectual exertion. Yet, even after the analysis has been carried to its farthest limit, there will still remain the facts of observation or experiment on which it is based. And as to these we may still be under the compulsion of relying upon the assertions of others.

Our conclusion is then that *necessity* for reliance on others exists nowhere except as to certain matters of observation or experiment; and as to these only in so far as they themselves are unanalysable or simple facts. The critical conclusions of competent investigators may on certain occasions be adopted on practical grounds without a sifting of the evidence; but to repeat a former remark this can receive no justification from the point of view of abstract logic. An assertion being given us, if it can be analysed it should be. If it cannot we must either suspend judgment or see how far the assertor satisfies the conditions of trustworthiness. If we are unable to do this, we finally have no choice but to avoid coming to a conclusion until we can.

Among the various kinds of authorities the *Specialist* and *Expert* deserve more particular mention. The terms are perhaps not very sharply distinguished; but 'specialist' adverts rather to the attainment of high proficiency by a limitation in the range of inquiry; while the term 'expert' imports the possession of a high degree of skill or capacity. They seem to differ also in this, that while the specialist must possess *all* the qualities of authority the expert need not. The latter may be an expert in some one or more of the particular kinds of skill or capacity that go to the making of authority. Thus we may have experts in observation, or in experiment, or in some particular variety of one of these. The two terms, however, are often used synonymously.

The natural home of the Expert seems to be the Law Courts, where — especially in Patent litigation — his habit is to distribute his favour impartially between plaintiffs and defendants. This habit of his gives point to the question: What is the proper way to use him? How can he best be made to give reliable assistance in any inquiry?

We have already seen that the argument from authority is logically defensible only when no other sufficient evidence

is available; only when either absolutely or practically it is a necessity. A slight development of this shows us the Expert in his proper place—he should be employed only in so far as his assistance is unavoidable. He should, to make the strictest use of his powers, be referred to only to prove or to point out unanalysable facts of observation or experiment not without his aid perceptible to or attainable by the inexpert. If this rule be departed from in any given case and the *expert* asked his opinion on a matter *as a whole* it should be clearly kept in view that such departure is justifiable only as a concession to convenience.

Concatenation of Testimony.—It is an obvious conclusion from the preceding discussion that a mere random assertion —uttered we know not by whom or under what circumstances—is in general of little value as testimony. Statements have weight as testimony only in so far as we already have information about the assertor independently of the subject under consideration. Testimony then, in general, consists in assertions whose trustworthiness can be judged through the medium of independent information about the assertor.

The case in which this independent information is obtained wholly or in part through the medium of other testimony deserves, on account of its wide occurrence and the importance of its uses, to be especially singled out. Our sources of testimony need not be known to us first-hand; indeed, perforce they are not usually so. By the various ways of obtaining a knowledge of distant facts, *including reliance on testimony*, we may obtain information about persons or writers at a distance or in the past sufficient to enable us to judge as to the trustworthiness of any statement that can be properly attributed to them.

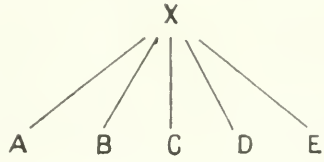
It is of some interest that testimony reached and vouched for in this manner can be shown to be free from the obvious objections to statements that have been handed on from person to person, each relying on his predecessor. The latter certainly bears a superficial resemblance to the use of testimony for establishing the credentials of other witnesses, and is liable to be confused with it. Indeed, in enforcing the importance of the distinction between the "self-infirmative chain" and the "self-corroborative chain," Bentham[1] and those who follow him seem to make no mention of any other possible way in which the testimony of a number of persons might be concatenated.

[1] *Rationale of Judicial Evidence*, vol. iii., p. 224, and chap. x., bk. vi.; Mill's *System of Logic*, chap. xxiii., § 6.

A "self-infirmative chain" is one in which a statement passes from mouth to mouth among persons whose credibility in mathematical language is less than unity. The probability of the truth of the final assertion is then measured by the product of a number of fractions corresponding to the number of links in the chain. It, therefore, continually diminishes as the length of the chain increases. The process may be symbolised thus—where the assertion X passes from E to A through D, C, B :—

X—E—D—C—B—A.

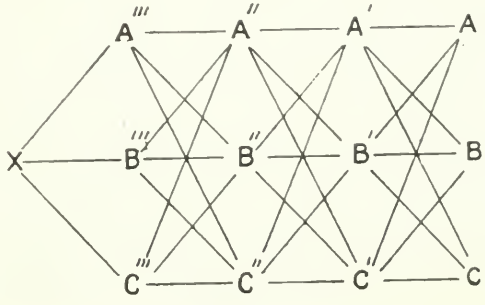
In the "self-corroborative chain" a number of persons independently make the same assertion X; a process which may thus be symbolised :—



The credibility of the assertion in this case is greater than that of an assertion of any of the witnesses taken separately; but the process possesses the disadvantage of carrying us but one remove from the fact; it takes but one step.

But if we make use of testimony as to the credentials of our witnesses, which is the method that our examination of the conditions of trustworthiness has led us to—if we inquire how far our witnesses satisfy the conditions of reliability—we find that we can retain the advantages of the "self-infirmative chain" without sacrificing those of the "self-corroborative chain"; we can combine the length of the former with the strength of the latter.

The process may be represented in a diagram thus :—



Here we have statements of A, B, C, to show that A′, B′, C′, respectively satisfy the conditions of trustworthiness with regard to their assertions about A″, B″, C″; and those of A″, B″, C″, as to the reliability of A‴, B‴, C‴. If, now, the last three agree in an assertion X we have confirmation of the same kind as in the "self-corroborative chain," joined with a number of steps or removes such as we find in the "self-infirmative chain". We have constructed in fact what might be more aptly termed a "bridge" than a "chain". This process is not a mere conjunction of the two former; for the assertion X, it should be noticed, does not pass through all the groups of assertors. We are supposed to get that directly from A‴, B‴, C‴. It is the reliability—the opportunities, capacity, sincerity—of the various assertors that is vouched for in successive stages. These are of course quite arbitrarily represented in the diagram. The number of persons in the different stages might vary largely; the contributions of the different witnesses, indicated by the number of cross-lines drawn from the letters in the diagram, might be very unequal; nor need the stages themselves be so distinctly marked as in the figure.

It is, however, quite unnecessary for the present purpose to attempt to represent on a diagram the ramifications of testimony in the full complexity of their actual occurrence. We may yet keep their variety in mind, and may also add in thought the further complication produced by the introduction at every stage of corroboration by extraneous evidence.

After the utmost has been done in the direction of getting knowledge first-hand, whether scientific or practical, the evidence in great part finally assumes this form. We cannot entirely sever any portion of knowledge from its context. When the historian makes use of the admissions of Clarendon in favour of the Parliamentarians, he first adduces contemporary testimony and other evidence to show the part played by his author in the public affairs of the time. This comes to the historian largely through manuscripts or books; perhaps fortified by the independently established history of some library of repute, or place of public record; perhaps guaranteed by generations of trustworthy editors and commentators spanning the interval from that time to this; possibly even the part taken by famous publishers may enter into the total sum. In the acceptance of Livingstone's accounts of the countries through which he passed, are not the relevant grounds in part the esteem in which he was held by his contemporaries, coupled with their

credentials; in part the credentials of the Societies and other media of record and publication through which his work has in successive stages come to the individual reader? If I submit myself to the knife of the Surgeon, how have I assured myself that he will do the right thing, unless by relying upon a complex tissue of testimony as to the professional ability of a large number of individuals? The same thing is seen in the employment of mathematical results by non-mathematical persons; and, as an attempt was made to show at the beginning of this paper, cannot by any process be avoided in even the best scientific work.

The actual occurrence of these "bridges" of testimony, explicitly set out in the structure of each one's knowledge, is doubtless rare. The singling of them out must in general be a process of logical analysis. But a man can so little divest himself of his social nature that they exist implicitly in almost every part of his knowledge. They are characteristic not merely of loosely and carelessly held floating opinion; they chiefly rise into prominence in the more carefully and exactly ascertained portions of his knowledge; those, indeed, more than in any others, in which he is apt to take pride for having thoroughly worked out and sifted them for himself.

V.—CRITICAL NOTICES.

Raumaesthetik und geometrisch-optische Täuschungen. Von Theodor Lipps, Professor a. d. Universität München. Mit 183 Figuren und einer Tafel. (Schriften der Gesellschaft f. psychologische Forschung, Heft 9-11, II. Sammlung). Leipzig: Verlag von Johann Ambrosius Barth, 1897. Pp. viii., 424.

The leading idea of this treatise (a masterly one from any point of view) is that the æsthetic effect of geometrical forms and the optical illusions connected with them depend on one and the same cause, are different aspects of one and the same thing, which Prof. Lipps in his introduction describes as the relation of these forms to nature and to living reality. He offers then an identical solution of two questions. But much the largest part of the five sections into which the book is divided is occupied with the detailed explanation of geometrical illusions, while their æsthetic bearing is pointed in short supplements to the various chapters, which, without being fully worked out, are full of the most suggestive hints towards the æsthetics of these figures. The general principle on which, with extraordinary consecutiveness and unity of thought, every detail is strung is described in the first section 'on the æsthetics of beautiful spatial forms'. It is a principle of mechanical or rather dynamical interpretation. Dr. Lipps follows an instinct both of art and of mercy in preparing the way for the abstract statement by treating a concrete example, the Doric column. The tall height of the column suggests a life which aspires upwards against its own weight. The circular form suggests a compression which prevents the column from flattening or expanding horizontally. And these tendencies are not merely juxtaposed but the one depends on the other. The column gathers itself together in order to rise. Such inner activity is the source of pleasure because we sympathise with it. Our æsthetic pleasure in spatial forms, and, the author adds, all æsthetic pleasure (p. 7) is "a feeling of sympathy which makes us happy". The spatial form (and even in a marble statue it is the spatial form as such, and not the material which pleases) pleases because it is regarded as animated with a principle of freedom like that of natural organisms, only more self-contained. We read into the figure past experiences of similar movements, and particularly of movements performed by ourselves. In doing so we

follow the law which Dr. Lipps has expounded elsewhere (in his *Grundthatsachen*) that experiences consolidate into a generalised law of mental working which serves us in fresh experiences which are only similar to the past ones. An excellent illustration of this "free movement" is given in the contrast between the unæsthetic effect of mere regularity as in a series of semicircles placed end to end with their concavities alternating in direction, and the beautiful smooth movement of the ordinary sinus-curve.

But the æsthetic effect demands more than the free activity of mechanical forces. The forces must form a unity, and again we read this unity into the object from our own personality. Such unity may be either successive, as in the continuous impulse of movement in a column, or simultaneous as where a number of columns spring from the ground together (like an act of will comprehending many similar parts) or 'central' where several activities radiate from the same point, as in a circle, and produce equilibrium. This last equilibrium is however only a special case in which the forces are in equilibrium to begin with. There is in a different sense an equilibrium in all beautiful forms which is of the last importance, for on it all the subsequent chapters depend. This is the equilibrium which grows out of the action of the forces engaged and is thus in any moment being reproduced. If the column rises it is also depressed by its weight, if the circle is compressed by the circumference it expands against it. Every force has in fact its counterforce, and in each case one of the two is primary and the other secondary, the one is described as 'force' and the other as 'tendency'.

But if there is always this equilibrium of force and tendency, how can illusion arise? Dr. Lipps insists (section ii.) that illusion is not an error of perception (*Wahrnehmung*) but of judgment. A line is underestimated, where this is the case, not because we see it smaller but because we judge it smaller in comparison with a standard of equal length brought in *idea* to compare with it. Only the judgment is so immediate and unreflective that it forces itself upon us as if it were an integral part of the perception. The illusion is an affair of ideas only. And we get geometrical illusions because of the forces we imagine working in the figure, and therefore altering the figure in idea in this direction. Thus if I imagine a line more compressed by its ends I judge it smaller than an equal line which does not suggest so much compression. The reason then why we can get such illusions in spite of the equilibrium of force and tendency is that we think of the one coming into play before the other, or we think of them as acting at different points of the figure. Hence, an enclosed space, *e.g.*, a square, looks smaller than an equal space where the vertical sides are undrawn because compression by the vertical lines is primary. But a letter enclosed in a circle seems bigger than it is because the compressing force acts at the circumference, while the expansive force belongs to the whole included surface and is shared by the figure within.

Three different forms of the antagonism of force and counter-force are recognised: (1) that of contraction, or compression, or limitation and expansion (*Begrenzung* and *Ausdehnung*); (2) that of gravity and vertical expansion; (3) that of identity and change of direction. The mass of the book falls into four sections, in which these three antagonisms are exhibited, though the division does not closely follow this enumeration. Under various heads an enormous number of illusions are described and arranged (some familiar, many new and of very ingenious devising), the mere collection and arrangement of which is itself a work of value, while their demonstration from a single principle is a wonderfully educative piece of systematic thinking, even if the reader is not yet convinced that the last word has been said. It is impossible to follow the argument closely. It will be best to outline the method of each section and give a few illustrations which can be described without diagrams.

Section iii. Expansion and Contraction (or Limitation). In horizontal or lateral directions, the figure is conceived as compressed (like a spring, I suppose) and then expanding against the pressure. The compressing force being primary, the figure, *e.g.*, a line, is underestimated, the boundaries are pushed inwards. In general a compressed form is underestimated. So a shilling looks smaller than its mould in wax because the limiting circumference acts in different directions in the two cases. A striking illusion (p. 75) is produced by a vertical row of points which have other points placed beside them horizontally, in one group to the right and in the next to the left, and so on: the points in the vertical row are deflected out of the vertical towards their companion points. The underestimation may be reduced by diminishing the compressing effect of the limits in degree, *e.g.*, including the points of a point-distance in circles, which makes them independent. According to this the straight line should look smaller than the corresponding distance, but this is counteracted by the greater solidity of the line, which gives it more expansiveness, or elasticity, while, at the same time, it expands only in one direction, whereas the mere point-distance is free to expand at right angles to its direction. There are secondary effects of limits on one another which I must pass over (c. xviii). With forms whose trend is vertical, the primary force is either gravity or the upward force according as the figure is viewed from above downwards, or from below upwards. In the first case the lower limit drops, in the second the higher limit rises. In both cases the vertical direction is overestimated (as against an equal horizontal length). This explains the familiar illusion by which of two oblique lengths in one straight line the upper seems to be continued above the lower.

Besides degrees of limitation, an interesting and important use is made of the notion of stages of limitation, which may be briefly explained. We may have a series of figures in which the com-

pressing force is greater and greater. But the narrower figure may be squeezed more (1) because it is weaker, or (2) merely because it is more compressed, though it has the same expansiveness. The results will differ according as we incline to one or the other view. Thus in the well-known illusions of 'confluxion,' or approximation (*Ausgleichung*) where a short line between two long ones looks longer, the same line between two short ones shorter, the lines in each figure all seem to partake of a common impulse (case 2), to have the same expansive force: hence the tendency to equalisation. On the other hand with surfaces like squares and circles the reverse is the case, for these figures seem independent, hence (case 1) the small circle between two bigger ones seems smaller, because of its inherent weakness. This is how Dr. Lipps explains the 'contrast' in this illusion.

Section iv. on Division and Composition is perhaps the best because the most intricate example of Dr. Lipps' method, and certainly the most difficult. It deals with the illusions of divided distances or divided lines (especially the case of symmetrical division into three), as well as of circles divided by a concentric circle, and these illusions stand in the closest connexion with those of approximation just described. They are various and interacting. Primarily the part is underestimated and the whole distance overestimated; but secondarily the reverse is the case. To explain the primary illusion: take a part, say the middle part, and compare it with an independent distance of the same length. This latter distance, by approximation to the whole divided line, seems bigger; the mere part therefore as a part, and not independent and therefore not thought of prominently as having equal expansive power with the whole distance, seems smaller in comparison with the same independent distance. On the other hand, the whole line may be considered as made up of independent portions which are overestimated, and is therefore itself overestimated. We may put the same thing from the compressive side, but I fear to encumber the statement. The opposite illusion arises from considering the part as sharing in the movement of the whole distance, as tending to expand to the limits of the whole. The bigger the part (still the middle part) is, the more it seems to break down its own limits; or, to put the case otherwise, the more it seems to be compressed by the limits of the whole distance and to be relieved of the compression of its own limits. This is beautifully illustrated by the effect of lightness given to a heavy pillar or cupboard when it supports a light weight (p. 158). The whole line is for similar reasons now underestimated. Owing to the interaction of these two causes the illusion varies with the size of the middle part, and the character of the variation is traced with great minuteness in a series of chapters (cc. xxix.-xxxvi.).

The famous Müller-Lyer illusions (the 'optical paradox') are

treated in this connexion. Where the oblique lines attached to the horizontal line are directed outwards, the horizontal is overestimated, because its ends compress the oblique lines outwards, and so compress the line itself less inwards ('coincidence of activities in opposite directions'), or what is the same thing, because it forms a relatively independent part of a continuous though broken line. When the oblique lines are directed inwards the compression exerted on the oblique lines as well makes the compressive force of the ends of the original line seem greater ('coincidence of activities in similar directions'), and the line is underestimated.

Section v. treats of illusions of direction, both familiar ones and also new variations of these. In the *Poggendorf* figure when an oblique line proceeding from a vertical seems more oblique, the illusion arises from supposing that the original movement in the vertical is deflected by a deflecting force. If we regard the oblique line as the original direction of the whole figure the vertical may in its turn appear deflected and hence 'contrast,' a distribution over both lines of the overestimated obliquity. The bending of straight lines through the proximity of curved ones, and the so-called overestimation of acute angles (*i.e.*, small divergencies of direction) follow here. Another class of illusion is typified by the Zöllner pattern where lines in one direction form a parallel series across the main line of the series as a whole. Many interesting variations of this are shown—among them, convincingly, the new Münsterberg or "Milton-Bradley" one (p. 319).

Section vi. on 'Varying Limitation of Surfaces' is the most elegant and convincing part of the whole demonstration—in particular where it deals with illusions of figures which alternately bulge and contract. A chapter on tapering (*Verjüngung*) describes the illusions of triangles and trapeziums. I find it difficult to describe the principles of these sections without the help of actual figures. But I may refer particularly to the æsthetical conclusions drawn, for instance to the contrast of Gothic and classical styles (pp. 347-8) and the treatment of the Spitzenmotiv in the Gothic spire (c. 52). Finally we have a chapter on the illusions of solid figures contracted in the middle like an hour glass, or bulging like a vase or the base of a column.

This account (faithful, I hope, though too short for those who have not read the book and superfluous for those who have) may give some idea of the way in which a single thought is made to cover a vast number of phenemona. Besides its admirable systematic completeness, the book has the signal merit, in such cases as those of contrast, of attempting an actual explanation of the phenomenon instead of using the name of the phenomenon to designate a mysterious cause. The question of whether the figures in every case verify the theory is a matter for experts in this line, and I am glad therefore to refer the reader to a discussion between Prof. Heymans and Prof. Lipps contained in a criticism by the

former in the *Zeitschrift für Psych.*, etc., Bd. xvii., pp. 383 ff., and a reply by the latter in Bd. xviii., pp. 404 ff., which reaches me while revising this notice for the press. Some of the figures in the book are not convincing, and particularly in the elaborate discussion of divided distances in cc. xxix.-xxxvi., which Dr. Lipps tells us he had not originally intended to print. But this may depend on the particular selection of figures which as he says may not be equally convincing to every person. Just because of this if for no other reason one would think actual measurements such as those made by Messrs. Heymans, Thiéry and others would be so useful. Dr. Lipps has deliberately in his experiments abstained from such measurements, but the reason as explained in his recent article (p. 425) that the force which the ideas of tendencies possess and their relative effects upon us cannot be measured does not seem very good, for it assumes the truth of the theory.

But without questioning the completeness of verification by experience, one may still, on more general grounds, remain unconvinced that the theory gives the primary reason of the illusions while believing at the same time that it contains an important result. I will explain my difficulty. The general theory that the illusions are illusions of judgment would not of itself cause any hesitation, for by allowing that these judgments are so immediate as to appear part of the perception the author separates them from explicit judgments. But the fuller account which Dr. Lipps gives in his recent article of how the illusion arises, causes me much difficulty. It appears now that the primary seat of the illusion is not the illusory figure itself, but the ideal standard with which it is compared. Thus, in the Müller-Lyer illusion, the line B with outward appendages seems bigger than the simple line A, because A when in idea juxtaposed to B seems smaller. In other words, we see B bigger because it really is seen bigger than our idea of A. I confess I had previously misunderstood the meaning of the process from the book. According to this then A shrinks in idea because its compression is not relieved as B's is. I find it hard to see how this applies to the case of deflection. But in any case I observe, (1) granted that the retinal image of B undergoes no alteration, there seems to be no greater essential difficulty in supposing the seen B to be modified in perception than to suppose the imagined A to be modified in a definite direction by the addition of a fresh idea, as it must be if the force interpretation holds; (2) the content of this elaborate process still has to be taken up 'immediately' into the perception of B. And (3) the account seems to agree ill with my subjective experience. If I first draw the line A and then add even on one side only the oblique appendages, I find the line, to use famous words, 'a-swellin' wisibly under my eyes'. I find it hard to believe that it is only my idea of the original A which has shrunk. At the same time I have in my eyes the very marked experience of movement.

This brings me to my real difficulty. One would like to be convinced by so comprehensive a theory. The principles employed are undoubted—the law of the unconscious working of mind as Dr. Lipps understands the phrase—the question of the propriety of names not being raised; and again, the method of reading our own personality into objects. But what I miss is a point of application for these ideas of forces. If I treat an object as one, it is because the object gives me many and coherent presentations in a combination familiar to me from my experience of myself. Before we can apply the idea of force we must feel or imagine the figures to be the seat of movements, there must be something in our experience of the figure which either is or suggests an experience of movement. But where this exists, what need to seek a further cause (I mean a further consciously entertained cause) of the illusion? More movement in a certain direction means more extension in that direction. If the legs of the Müller-Lyer figure draw my eyes on really (as seems to me to be often the case) or in idea, the illusion may in these cases be at once explained. It is well known that optical illusions are referred by Prof. Wundt to actual or anticipated eye-movements, and he has recently restated his view (with additional matter which does not directly concern us here) in an important treatise—*Die Geometrisch-optische Täuschungen*, Leipzig, 1898 (repeated in substance in *Phil. Stud.*, xiv., Heft 1). In some of the cases he adduces my own feelings of movement in the eyes are so marked that I find an explanation by reference to the kinæsthetic experiences of the eyes to be the most natural in the world. Dr. Lipps will have nothing to do with eye-movements as an integral factor in space-perception. Now, one may confess that no extant theory of them is satisfactory, and that much which used to be explained by them may be plausibly explained without them. Still one may point to exploration and fail to understand the impertinent superfluity of the experience of eye-movement if it is only the mere physical movement which is of use. And again one may urge that these very optical illusions are an important chapter in the theory of space-perception, and demand discussion on their own merits. Consequently I, and perhaps others, feel that it is wiser to be off with the old love before we are on with the new.

Hence the difficulty which I should like to have removed before accepting Dr. Lipps' theory of mechanical interpretation as explaining all geometrical illusions, is that in the present statement his forces seem stuck on to given data, and not an outgrowth from them, and that when their connexion is realised through the implication of movement they are, at least in some cases, superfluous for the primary purpose. But this would only prevent us from identifying the cause of optical illusions and of the æsthetic effect of the figures. For this interpretation may be the analysis of the forces at work in the movements contained or implied in the perception of the figures, and as such would be of the

last importance for understanding their æsthetical character, and in particular cases may perhaps also be required (as, *e.g.*, in the 'contrast' of the small circle between two big ones) to account fully even for the purely optical effect. At the same time, if this criticism is well-founded, since we may in any case go on explicitly to conceive of these forces as at work, it is not surprising that all optical illusions should accord (as we may assume they do) with the conclusions of the mechanical theory, though that is not needed to explain the psychological effect.

S. ALEXANDER.

Die Sociale Frage im Lichte der Philosophie. Von DR. LUDWIG STEIN, Professor der Philosophie an der Universität Bern. Stuttgart: Ferdinand Enke, 1897. Pp. 791.

THIS thoughtful volume is based on a series of lectures on Social Philosophy delivered by Prof. Stein in the first place at Zürich, and afterwards in a more comprehensive form at Berne. These lectures, it appears, were not addressed to an audience of specialists, but to the educated public of the university interested in social questions. The manner in which Dr. Stein's book originated is more or less perceptible on almost every page. It is vivacious, rhetorical, expansive; free from technicalities; and much more readable than the majority of German treatises on serious subjects. But it must also be observed that the volume has the inevitable defects of its qualities. The expository methods of the lecture-room have had an unfortunate effect on the bulk of the book. In these days of wide and varied interests it is expecting too much of human nature to toil through a volume of almost 800 pages, when the burden on the patient reader might have been lightened by a process of judicious compression. If Dr. Stein's book reaches a second edition (and it undoubtedly deserves to do so), it is to be hoped that he will consider the advisability of altering the arrangement of the materials, and dividing them into two volumes. The first volume would deal with the history of Social Philosophy, which now occupies about one half of the present book; and the second volume would be confined to an exposition of the author's own system.

Prof. Stein's sketch of the history of Social Philosophy from the earliest times to the present day is very well done. It does not profess to present the subject to the reader from an original point of view. Perhaps it is all the better on that account. The desire at all hazards to be new, which not infrequently characterises German learning, has its dangers as well as virtues. Measure, balance, proportion are sometimes sacrificed for the sake of novelty, with the result that instead of a catholic presentment of the facts we get a sectarian insistence on points of minor importance. In tracing the history of Social Philosophy, Dr. Stein

takes the opportunity of discussing the materialistic conception of history as it is set forth in the writings of Engels and Marx. He admits that among savage and uncivilised peoples the life of the community was determined by the constant and overwhelming pressure of material conditions, in the form of economic needs. But he points out that although the earliest forms of social life are the historic product of economic evolution, yet the ultimate origin of economic evolution itself is psychical, and not material. As social organisation advances Dr. Stein holds that the materialistic conception of social development becomes less and less accurate as a key to the interpretation of the facts. Mental conditions increase in power and importance; they tend to balance and finally outweigh material conditions in determining the structure and functions of society. If we may at this point venture on a criticism, it will be to say that the battle between the materialistic and the ideological interpretation of history is perhaps somewhat profitless. It seems to me that the correlation, the concomitance, or whatever word we like to use to express the connexion between man's physical and mental characteristics, is so intimate and far-reaching that it is impossible to construct a theory of the origin and development of society which does not include them both. The evolution of society is the result of the combined operation of physical and mental needs, and it is a more philosophic method to recognise their indissoluble concomitance than to argue about the insoluble question of precedence.

In the first four chapters or lectures Prof. Stein establishes the competence of philosophy to deal with the social question. The social question of late has been regarded as lying entirely within the domain of political economy; and it is not to be denied that in so far as the social question is economic in its character political economy must exercise a paramount influence in its discussion. But the solution of the social problem, if it is a problem which admits of being solved at all, is a task beyond the powers of the economist. Centuries before political economy as an exact, or comparatively exact, science came into existence the social question occupied the attention of philosophy. It was discussed from this standpoint by the Cynics, by Plato, and Aristotle, and in modern times by almost all the most important leaders of social thought. Men such as Morelly, Rousseau, St. Simon, Fourier, Proudhon, Lassalle, Marx, and Engels were in the first place philosophers rather than economists. Even Adam Smith himself, the father of modern political economy, was a teacher of philosophy. But apart from these facts philosophy is entitled to say the supreme word on the social question, if we accept the definition of philosophy which has been formulated in recent times by such men as Comte and Wilhelm Wundt. According to these writers philosophy is the highest generalisation of all the sciences combined as far as possible into a harmonious whole. The task of philosophy consists in looking at the social question in the light

of these generalisations, and if the social question is to be embraced in its entirety it must be looked at from this point of view. When the social question is regarded in this comprehensive manner it is seen to possess an ethical and religious as well as an economic character. The solution of the economic problem would not put an end to social unrest. Even if Fourier's dream were realised or the prediction of Siemen's that food will one day be produced in inexhaustible quantities from inorganic substances the social question will remain to torment the world if men's ethical and religious needs are still unsatisfied. In fact, the satisfaction of our animal needs will be immediately succeeded by the demand for the satisfaction of our human needs; and to assure the material basis of existence for all will be at best an ineffective step, unless ample nourishment is also provided for the mental and moral interests of all. In the Middle Ages the Church provided successfully for the immaterial cravings of the mind and heart. In a certain degree it does so still. But modern criticism has laid an unsparing and ruthless hand on the ecclesiastical synthesis so elaborately constructed by the mediæval world, and Dr. Stein considers it is losing its hold not only in educated circles but also among considerable sections of the masses as a trustworthy or acceptable conception of life and of the totality of things. "Ni Dieu ni Maitre" is an ominous watchword. It indicates religious as well as economic bewilderment. The only remedy for this formidable condition of mind and temper is, says Dr. Stein, a sound system of social philosophy. At the present time the word Socialism is beginning to exercise the same electrifying effect on the popular mind as the word Liberalism used to do. One of the objects contemporary social thinkers should aim at is to give the word Socialism a deeper and more comprehensive meaning. It should be made to mean more than mere economic collectivism. It should be construed so as to represent the reconciliation and harmonious co-operation of individual and collective interests. It should be a word of the highest ethical and religious import; it should stand for the religious as well as the economic ideal. In short, the significance of the word should be heightened till it becomes a synonym for all the highest material and ideal interests of humanity.

Dr. Stein attempts to show how this truly gigantic task is to be accomplished in the third division of this book. In this division he lays down the principles of a system of social philosophy in a series of chapters on the individual, the state, society, property law and religion. It would not be fair to Dr. Stein to attempt to summarise his position on all these important matters. Dr. Stein's view of property is not what is ordinarily understood as socialistic. He admits that property was originally held in common, and that in course of time if a more satisfactory social organisation does not arise than the present one property may again be taken possession of by the community. But he considers

that the time for such a revolutionary step has not yet come, and need never come if our conceptions of property are modified to suit the developing exigencies of social life. He even considers that private property may be made to exercise a moralising effect on the community. This would no doubt be the case if the ethical standards of the holders of private property were sufficiently high; and it is a part of Dr. Stein's scheme of the social future that the holders of property shall be so effectively socialised as to realise all the social obligations which the possession of property entails. In society as it exists at present the principle on which the owner of property usually acts is to give as little and to take as much as he can, and the man who is most successful at this sort of thing is the man who generally acquires great possessions, and along with them a vast amount of power over his fellows. It is certainly undesirable that this type of person should exercise the dominating influence which is now his. The abolition of private property would put an end to this undesirable social type; but it would be possible to suppress it and also many of the other evils connected with private property if we had what Dr. Stein describes as the Socialisation of Law.

According to Stein it is in the direction of the Socialisation of Law (Rechtssocialismus) that we must move if we mean to establish a higher order of social justice and social well-being. In the past law has in too many instances been developed in the interests of powerful individuals and powerful classes, and it still retains the stamp of its origin. The immediate task of the future is to adjust law to social needs and social interests till it becomes the codified expression of the modern conception of justice. One of the most potent causes of unrest at the present time is the conflict in the existing order of society between the opposing principles of liberty and equality. The principle of liberty aims at securing and upholding the interests of the individual. The principle of equality aims at holding the individual in check, and compelling him to subordinate his purely personal interests to the interests of society as a whole. It is unbridled industrial liberty with inequality on a stupendous scale as its inevitable accompaniment which is mainly responsible for the present social crisis. This crisis will continue and tend to become more acute until the conflicting demands of liberty and equality have been adjusted. The only way in which the process of adjustment can be proceeded with is by the Socialisation of Law. State socialism cannot harmonise liberty and equality. In fact State socialism has had its day. Its principles and methods have been shattered by criticism. Its prestige is rapidly on the wane in Germany—its place of birth. For the last generation or so the State socialists have had it all their own way. But they have been unable to formulate any definite and coherent system. It is on other principles and by other methods than these that the social question must be approached. According to Dr. Stein, the social problem in so far as

it is concerned with the reconciliation of liberty and equality must be approached from the standpoint of *Rechtssocialismus.* From this standpoint liberty is seen to be a relative term. Such a thing as absolute liberty never has existed and never can exist. The only liberty we know of worthy of the name is liberty within the law. In the same way there is not, and cannot be, such a thing as absolute equality. Equality before the law is the only feasible form of equality among civilised communities. Both liberty and equality in so far as they are realities are the creation of law, and are dependent upon law for their existence. Inasmuch as their conflicting principles are the creation of law it is only through the instrumentality of law that they can be harmonised. Law must develop with developing social requirements. The lines of its future development must be social lines, and the conscious aim of law working on socialised principles will be to secure a maximum of liberty with a minimum of inequality. One of the means by which this end shall be attained is what Dr. Stein describes as economic *proportionality.* Economic equality is plainly unattainable, but law can secure a large amount of economic proportionality. The fruits of labour are not distributed in their just proportions among the people who have co-operated in producing them. This evil and all the misery which it envolves is the result of the unbridled liberty allowed to individuals in the present industrial system. A socialised system of law would put an end to the evil, by introducing and enforcing the principle of proportionality in all industrial relationships. In this way the sentiment of liberty would be respected on the one hand and the sentiment of equality on the other. But neither would be allowed an undue dominance.

For an exposition of the various practical developments which the socialisation of law would involve the reader must be referred to Dr. Stein's book. Among these developments the socialisation of law would guarantee the right to exist, and probably the right to labour. In fact all matters relating to the position of labour and the labourer, such as the national organisation of labour, the hours of labour, the protection of the labourer, the organisation of the labouring classes belong to the sphere of *Rechtssocialismus.* But Rechtssocialismus does not seek the solution of this and similar social problems on the lines of social democracy. According to Dr. Stein the social democratic movement is in the main merely a class movement. It aims at representing the interests of the industrial proletariat only, and the accomplishment of its programme would necessitate the destruction of the modern state. But the programme of the socialism of law embraces the interests of all classes and sections of society and aims at conserving the modern state by bringing all institutions within it into closer agreement with the principles of science, humanity and justice.

According to Dr. Stein religion requires to be socialised as well

as law. He considers that theism still maintains its hold over the modern world, and that historic ecclesiastical institutions only require a clergy in full touch with the age in order to become a vast socialising power. If ecclesiastical institutions bury themselves in the past and refuse to look the problems of the present unflinchingly in the face they will ultimately become things of the past. The permanence of these institutions depends on the extent to which they can make themselves the organs of living issues. Dr. Stein considers that a movement in this direction is slowly taking place among the churches of Christendom. If this movement should develop it will have the effect of facilitating the solution of several grave questions which are at present a danger and an embarrassment to western civilisation. For Dr. Stein's views on the socialisation of art, science, education, and on international peace the reader will have to consult the concluding chapters of his suggestive book. It would not be difficult to find fault with some of his conclusions, and perhaps to regard his judgment as having been somewhat hastily formed on certain points. In a work covering such a wide field and dealing with so many complex problems this is to be expected. At the same time it must be said that Dr. Stein has performed an extremely difficult task with remarkable comprehensiveness and ability. His work is loaded with thought on almost every page, and whether we agree with him or not he seldom fails to help us in clearing our own minds.

W. D. Morrison.

Logic, Deductive and Inductive. By Carveth Read, M.A. London: Grant Richards, 1898. Pp. 323.

This book may be briefly described as a very compact and convenient logical manual, and I know of nothing which seems to me better for learner or teacher, within the compass of a single very moderate volume. It challenges comparison with Jevons' *Elementary Lessons* on the one hand, and with Mill and Dr. Keynes on the other, being fuller and more complete than the former, and much briefer of course than Dr. Keynes and Mill in the treatment of Deduction and Induction respectively. Yet it might be said that almost nothing of interest or importance in Keynes or Mill has been left altogether untouched. That this should be so, and yet that the book should be, as it is, lucid, pleasant to read, and without any appearance of overcrowding, says a great deal for the writer's judgment and powers of exposition. Mr. Read is never careless, fantastic, dull, or obscure. He is especially good in illustration (*cf.*, *e.g.*, chapter xvi., *The Canons of Direct Induction*, and chapter xvii., *Combined Induction and Deduction*, and the section on Explanation in chapter xix.); and this is one of the strongest points—perhaps the strongest—in his book. He never fails to give an illustration where it is

wanted, and the illustrations are never inappropriate or trivial, though sometimes they seem to be of the nature of a joke.

It has been said by a great writer on ethics that there is general agreement as to what Virtue is—that "there is in reality an universally acknowledged standard of it. It is that which all ages and all countries have made profession of in public; it is that which every man you meet puts on the show of; it is that which the primary and fundamental laws of all civil constitutions over the face of the earth make it their business and endeavour to enforce the practice of upon mankind." Yet—as a later writer tells us—"on its speculative side it has been, and it still is, the centre of apparently endless controversy—the subject of every species of confusion". And *mutatis mutandis*, the same paradox seems applicable in Logic, and more especially that core of Deductive Logic which has remained in essentials unchanged from Aristotle to Mill. (How far, apart from the direct acquisition of fresh information and from metaphysical and psychological principles, it includes 'Inductive' Logic is a point which Mr. Read seems to decide in favour of inclusion—*cf.* p. 193.) Most of us know, and are agreed, *what* good reasoning—cogent syllogism or trustworthy Induction—is, but *why* it is good, what the theory of valid inference is, is regarded as matter of doubt and difficulty. Thinkers who believe themselves to base all knowledge upon 'particulars,' and those who start from universal principles, are equally capable of estimating or discovering scientific truth; those who insist upon the importance in logical theory of a careful and unremitting reference to context, and those who treat propositions symbolically and thus of necessity leave particularities of context out of account would for the most part be in entire agreement as to the validity or invalidity of any clearly understood argument. And those who appear to "identify" Psychology and Logic, are just as keen as others to detect an inference that is not logical. These well-worn reflections are suggested by Mr. Read's book, partly because of the list of writers to whom he refers in his Preface, partly because he succeeds to a great extent in carrying out his intention of treating the recognised body of logical doctrine in separation from speculative theory—from the more disputable matter of Psychology and Metaphysics — and partly because they receive interesting though perhaps superficial illustration from comparison of the present book with the author's *Theory of Logic* published in 1878 and reviewed by Dr. Venn in MIND for that year. Nothing could well be more striking than the unlikeness between the two works in many respects — in form, in purpose, in statement, in some theoretical explanations of accepted logical doctrines. But the logical core of both is essentially the same—indeed in this case, more than the core, since in reality the same matter-of-fact view is on the whole kept, and the same school of writers adhered to. And it is further interesting to notice how both books are

marked by similar intellectual characteristics, though the vigour which in the first was shown in new ways of seeing, expressing and explaining "old truths," and in an exuberance of new terms and symbols, is in the latter work apparent in clearness and freshness of exposition, and abundance of illustration, devoted to the service of traditional doctrine and expressed in current terminology.

In the Preface to the present book, Mr. Read mentions Mill, Prof. Bain, Dr. Venn and Dr. Keynes as the writers to whom he is chiefly indebted, and he refers besides to Mr. Bradley, Mr. Bosanquet and Mr. Alfred Sidgwick (among English authors). To the latter of these (together with Mr. Thomas Whittaker and Prof. C. M. Thompson) he expresses gratitude for advice on various points. In the Deductive part of his book, Mr. Read has taken advantage of Dr. Keynes' improvements on preceding Formal Logicians, and has thus given a much more complete and systematic account of, *e.g.*, Immediate Inferences than Jevons or any other previous writer. And that he has not been uninfluenced by Mr. Bradley's and Mr. Bosanquet's writings, and Mr. Alfred Sidgwick's, may be inferred from the general effort after continuity and unification of subject which marks his work, in his references—implicit or explicit—to that analysis which must have preceded synthesis in Logic, to the effect of context on meaning, and to the 'artificiality,' the relativity to human purpose, of classification, etc. But wherever the work of the writers referred to has led to discussions or considerations impossible to be presented without great complexity, at that point Mr. Read generally ceases to follow them—*e.g.*, in reference to "Predication and Existence," the distinction between "Conditionals" and "Hypotheticals" as two distinct kinds of propositions of the form *If A, then C*, the Quantification of the Predicate, the liability of human faculties to error in observation and perception, the relation between Causation and Co-existence, the interpretation of the Law of Identity, the nature of mathematical truth, immediacy of succession in Causation.

No doubt there are excellent reasons for this; a handbook is not the place for raising doubts that cannot be solved, or at least laid to rest; and I think that what can be done in the way of a brief clearing up of difficulties great or small (often only difficulties on the surface, but none the less puzzling on that account) and of reconciling apparent contradictions, has been done over and over again by Mr. Read in this book with surprising skill and success. *Cf.*, *e.g.*, his treatment of *Inductive Method*, chapter xv., and of the relation between Induction and Deduction, his recurrence to *Suppositio* as a substitute for *Universe of Discourse*, his explanation of the saying, *Exceptio probat regulam;* and the treatment of Classification, and Nomenclature and the Predicables, in chapters xxi. and xxii., though brief is very elucidating. "Let us," he seems to say, "go as far as may be without plunging into any metaphysical or psychological quagmire; let us spare

no pains to do what we *can*, but let us also recognise clearly what we *cannot*, and cease to waste time upon it." The spirit and temper of the book in this regard are indicated in a sentence on p. 194, in which the author is referring to those difficulties of ascertaining "exact equality" and "immediate sequence" of phenomena which are due to the limitation of human faculty. "It is right," he says, "to touch upon this well-known sceptical topic; but to insist much upon it is not a sign of good sense."

That this treatment has advantages from some points of view has just been allowed; but it must be admitted that in some cases Mr. Read's "short way with the sceptics" does not seem to lead to results satisfactory even from those points of view. Take, *e.g.*, his account of the relation between Logic and Mathematics, or his treatment of the Laws of Thought, and of the connexion between Causation and Co-existence. On this view Mathematics seems to be almost (though perhaps not quite) a Science co-ordinate with Logic, and is described as dealing throughout with abstractions. Thus Logic is *not* all-embracing, *not* the Science of Sciences, after all—and Mathematics has the air of being separated by an impassable chasm from the world of concrete fact.

"Mathematics," it is said, "treats of the relations of all sorts of things considered as quantities," while Logic "treats of the relations of all sorts of things, but not as to their quantity" (p. 7) —(this is indeed somewhat qualified by the recognition that "Logic may be said to be in some respects 'prior to' or 'above' Mathematics as usually treated," p. 8). Again, "As to Co-existences, the Geometrical do not belong to Logic" (p. 146), and "Geometrical Co-existence, when it is not a matter of definition, . . . is deduced from the Definitions and Axioms" (p. 233). The process of Geometrical proof "is purely Deductive; . . . Diagrams are used not as facts for observation, but merely to fix our attention; . . . no inference is required from the special case to all similar ones; for they are all proved at once" (p. 166). And we even have the "falling of absolutely true dice" contrasted as "mere mathematical abstractions" with "concrete events" (p. 248). "The Mathematical Axioms again," we are told, "apply to Time, Space, Mental Phenomena, and Matter and Energy; whereas the Law of Causation is only true of concrete events," etc. (p. 225).

These contentions (though they certainly stop short of some obvious difficulties) are at least disputable, and to a large extent they appear to be even obviously paradoxical. Surely *all* the rules of Logic apply in mathematical reasonings—if quantities as such are not subject to logical treatment, it would seem that all the world of phenomena in some of its aspects (and those the most definite and precise) is extra-logical. And when it is said that "the Law of Causation cannot be derived from the Mathematical Axioms, nor these from the Logical" (p. 226), it may be replied that it is not only *Mathematical* principles which cannot

be deduced from Logical ones; the same is true of the rules of relation in every 'system' or body of related facts or things—of family and political relationships, of the parts of any organism or machine, even of the causal relation of succession in time.

It is perhaps partly to this drastic separation from Logic of Mathematics, with its imposing system of inexhaustible co-existences, that is due Mr. Read's slighting treatment of Co-existence in comparison of Sequence (in which he follows Mill). Dr. Venn goes far towards recognising that Co-existence is of no less importance for Induction than Succession is; and it is difficult to see how it could ever have been seriously doubted that uniformities of Succession must presuppose uniformities of Co-existence.

The principle of Identity, says Mr. Read, "assumes that something is, and that it may be represented by a term . . . further, it is assumed that of the same thing another term may be predicated again and again in the same sense". How a "principle" that is fairly expressed as *A is A* (or even *If B is A, B is A* which Mr. Read prefers) can have any logical connexion with the assumption that "of the same thing another term may be predicated" it is not easy to see; and indeed it is perhaps too much to expect that as long as a Law of Identity expressible as *A is A* is put forward as a fundamental Law of Thought—of Thought which proceeds by judgments of the form *S is P*—anything satisfactory should or could be said on the subject. After Lotze's determined effort and signal failure, the case may well seem hopeless.

The following account of the two other "Laws of Thought," the Principles of Contradiction and Excluded Middle, is interesting but perhaps a little fanciful. They are, it is said, inseparable; "implicit in all distinct experience, and may be regarded as indicating the two aspects of Negation. The principle of Contradiction says: *B is either A or not-A*, as if *not-A* might be nothing at all; this is abstract negation. But the principle of Excluded Middle says: *Granting that B is not A, it is still something*—namely, not-A; thus bringing us back to the concrete experience of a continuum in which the absence of one thing implies the presence of something else. Symbolically: to deny that B is A is to affirm that B is not A, and this only differs by a hyphen from B is not-A. But if any one holds that the hyphen makes all the difference, I give it up."

To sum up, it may be said that Mr. Read does not perhaps undertake to carry us, in Formal Logic, much beyond current handbooks, nor in Induction much beyond Mill; and granting this, he is somewhat better than his undertaking, and though careful not to innovate, he does his readers the service of putting them at a point of view from which the ultimate unity of Logic, and final elimination of contradictions between opposing views, seem natural as well as desirable. It is difficult without going into elaborate detail, to convey the impression of compactness, vigour, keenness, and unsparing pains which a perusal of the

book gives—all these working within the limits of traditional doctrine and terminology, and resolutely trying to make the best of them. Still I should like to give an extract or two by way of example, and will take the following brief expositions of (1) the relation between Induction and Deduction, (2) the non-plurality of Causes, which seem to me admirable for their purpose :

(1) " In any question of general truth, induction and deduction are mutually dependent and imply one another. This may be seen in one of the above examples. A argues that a certain metal is copper, because every metal is copper that turns green when dipped in vinegar. So far his proof appeals to a general proposition and is deductive. But if B asks how he knows the general proposition to be true, A alleges experiments or facts ; and this is inductive evidence. Deduction then depends on Induction. But when B asks, again, how any number of past experiments can prove a general proposition, which must be good for the future as well as for the past, A invokes the uniformity of Causation ; that is, he appeals to a principle, and that is again deductive proof " (p. 4).

(2) " A fire may certainly be lit in many ways ; with a match, or a flint and steel, or by rubbing sticks together, or by a flash of lightning : have we not here a plurality of causes? Not if we take account of the whole effect ; for then we shall find it modified in each case according to the difference of the Cause. In one case there will be a burnt match, in another a warm flint, in the last a changed state of electrical tension. And similar differences would be found in cases of death under different conditions, as stabbing, hanging, cholera ; or of shipwreck from explosion, scuttling, tempest. In fact if we knew the facts minutely enough, it would be found that there is only one cause (sum of conditions) for each effect (sum of co-effects), and that the order of events is as uniform backwards as forwards " (p. 156).

In conclusion, I will quote the following brief reflexion which seems to me as true as it is fresh :—

" It is better to be vaguely right than exactly wrong. In the criticism of manners, of fine art, or of literature, in politics, religion and moral philosophy, what we are anxious to say is often far from clear to ourselves ; and it is better to indicate our meaning approximately, or as we feel about it, than to convey a false meaning, or to lose the warmth and colour that are the life of such reflexions " (p. 272).

E. E. CONSTANCE JONES.

Studies in Psychical Research. By FRANK PODMORE. London : Kegan, Paul, Trench, Trübner & Co., 1897. Pp. ix., 458.

" PSYCHICAL " phenomena are, as it were, the Dreyfus case of Science. Their non-existence has to be accepted as a *chose jugée*,

without inquiry into the means by which their condemnation was secured. Public curiosity must content itself with assurances that all the high priests of Science concur in the condemnation and regard all discussion of the case as fraught with the gravest danger to the republic, that their existence is avouched only by a conspiring syndicate of all the superstitions, and that to doubt the infallibility of the very summary court martial which relegated them to the company of Beelzebub in the 'Island of the Devil,' in the time and under the logical auspices of David Hume, is high treason to Science and subversive of the whole natural order of the universe. Such are the sentiments of the conservative party which would rather run the risk of sacrificing a little inopportune truth than upset men's minds and the authority of Science, and which, needless to say, is full of honourable men actuated by a sincere sense of public duty. Yet they would do well to recognise the existence, on the other side, of a growing number of "intellectuals" who are convinced of the necessity of a revision of the wholesale condemnation of these phenomena. These 'revisionists' are not without their internal differences; some demand revision as a matter of policy, others as compliance with the principle of *fiat justitia ruat coelum* (though they probably do not believe that the heavens would fall or the order of nature be subverted by the recognition of any fact however strange); some believe that much new truth may be learned from inquiries which others expect only to extend our knowledge of the nature and possibilities of human error. But they agree that the doubts which existed in the public conscience as to the treatment which this side of experience had received in the past could be removed, not by assertions and denunciations *a priori*, but only by a serious and sustained investigation in detail. And so they organised themselves in 1882 into the Society for Psychical Research, in which Mr. Podmore has been from the first a most active and valuable member. He is consequently one of the very few who are (or ever have been) entitled to speak with authority on the subject, and his pronouncements appear to all the greater advantage by reason of the manner in which they are put forth. For Mr. Podmore has produced a singularly interesting survey of his subject, written in a lucid and effective style and adorned with many terse and caustic phrases.

His results are briefly these—Spiritualism is a religious rather than a scientific movement, and its votaries are in general little concerned to assist in a scientific study of their 'experiences'. Their 'mediums' are without exception detected cheats, and moreover just now hardly any are available, while their exhibitions do not present even a *primâ facie* case for investigation. The stronger evidence for past marvels is ingeniously minimised. The Dialectical Society's Report is criticised for not giving the names of the sub-committee which succeeded in table-turning without contact. Zöllner is regarded as a victim of Slade's conjuring tricks, and as having given him opportunities for fraudulent

substitutions in the 'test' objects. Stainton Moses' phenomena derive their evidential value from the strong presumption of his honesty, but he may have been a conscious, unconscious or semi-conscious fraud. Under the circumstances this is perhaps unlikely, but we have to choose between a moral and a physical miracle (p. 133). Home's case, supported by much experimental testimony from Sir W. Crookes and the Earls of Crawford and Dunraven, is treated with more respect. Still Mr. Podmore gets over this *mauvais pas* also, by supposing that the witnesses were to some extent hallucinated. Collective hallucinations are possible—especially if we admit telepathy—and the conditions of a *séance* are calculated to produce them. And Home may have eked out deficiencies in the actual events by his suggestions. *E.g.*, he really took live coals out of the fire, and his sitters believed that he handled them with impunity (and sprinkled them over their hair and handkerchiefs!), nay he "possibly on some occasions held them in his hands," protected by "some non-conducting substance" (what?); "he really stretched himself to his full height"—and his sitters recorded his elongation by ten inches; "he thrust his head and shoulders out of the window"—and seemed to them to have floated from one room into another seven feet distant seventy feet in the air! (p. 121-2). After this, "*poltergeists*" are easily ascribed to the trickery of naughty girls helped out by a little "sensory illusion conditioned by the excited state of the percipients" (p. 158). An entertaining account is given of the 'theosophic' career of Madame Blavatsky. The evidence for experimental thought-transference, on the other hand, Mr. Podmore considers sufficient to establish the fact, and with its aid he goes on to explain away ghosts, collective and death-apparitions, considered as proofs of *post-mortem* spiritual agency. From the same point of view, haunted houses are defective; there is little evidence of identity and purposiveness, and much to show that the apparitions are subjective and stimulated by antecedent auditory disturbances. The evidence for premonitions is disappointing both in quantity and in quality and may be assumed to be greatly vitiated by illusions of memory. In chapter xii. the spontaneous phenomena of secondary consciousness are held not to warrant Mr. Myers' theory of a continuous and extensive 'subliminal self,' while the distinct personalities of the French experimental cases are considered to be largely artificial and built up by suggestion. On the whole, they are "not a prophecy but a survival," restoring "a more primitive stage of consciousness" (p. 413), which has ordinarily given way to the more effectual organisation of our work-a-day selves. Lastly, in his concluding chapter on obsession and clairvoyance, Mr. Podmore comes upon a second set of phenomena which gives pause to the *élan* of his scepticism, *viz.*, Prof. James' "white crow," Mrs. Piper. The evidence produced in connexion with her trances proves at least thought-transference, but requires that theory to be strained to the uttermost. And,

especially in its latest developments, it forms, Mr. Podmore concludes, "the most important evidence which the Society for Psychical Research has yet adduced for the existence of something beyond telepathy". This will not be esteemed an overstatement by any one who has read the remarkable testimony contained in No. xxxiii. of the *Proceedings of the Psychical Society*, and knows how to attribute due weight to the conversion which it has effected of Dr. Hodgson, the greatest expert in these matters and the hero of a hundred exposures, to what is substantially the much decried spiritist theory of the phenomena.

The above abstract of Mr. Podmore's results necessarily fails to do justice to the ingenuity of his reasoning and the effective use he makes of the documents collected by the Society for Psychical Research. But it suffices to show that he is the most sceptical of psychical researchers. Indeed he sometimes arouses a feeling that here is scepticism 'strained to the uttermost,' or at least the high-water mark of reasonable doubt. For my own part, I should sometimes prefer complete suspense of judgment to forced explanations which derive their validity only from the assumed antecedent improbability of the facts alleged.

Nor do I find myself altogether in harmony with Mr. Podmore's attitude towards the spiritists. It is of course the fashion to represent them as a body of deluded maniacs, for whom it is impossible to say a good word without destroying one's reputation for intellectual sanity. Yet it is undeniable that much of the best evidence on these subjects concerns some of the most anomalous spiritistic phenomena. And Mr. Podmore by no means always succeeds in disposing of it completely. In other words, spiritism adduces some of the best as well as some of the worst of the evidence. Mr. Podmore's method is to interpret the former in the discreditable light reflected on it by the latter. But it is possible to make too much of the credulity of the vulgar spiritists. The vulgar are always credulous, and their convictions, *as expressed by themselves*, always rest upon inadequate foundations. It ought to be recognised as a general principle that lay evidence upon a subject of scientific debate can yield at the utmost scientific suggestion, but never scientific proof. For all that the history of science shows that the vulgar beliefs have often been right (*cf.*, *e.g.*, the belief in meteorites, fire-balls, giant cuttle-fish, the connexion between barberries and wheat-rust, and the still disputed existence of 'telegony' and sea-serpents). It it therefore the strongest and not the weakest evidence which must be considered, and due care must be taken to apply to each sort of evidence the canons of criticism appropriate to it. It is, for instance, well known that in ordinary life no two witnesses tell quite the same tale independently. Hence discrepancies are here a guarantee of good faith, whereas in scientific observations they would provoke distrust. Even the credulity of ordinary spiritist audiences in succumbing to trickery deserves perhaps more lenient

treatment than Mr. Podmore accords to it. It is, after all, largely the result of the social neglect to examine the facts, of the social acquiescence in conditions which provoke deception and render it easy. And if we regard the spiritists, as Mr. Podmore rightly points out they should be regarded, not as a scientific but as a religious sect, their credulity will not appear excessive. On the contrary, it will be seen that they must absorb an unusual amount of criticism in their faith. For its believers, almost without exception, are converts, *i.e.*, were originally disbelievers, and convinced themselves by evidence which seemed to them sufficient. And, moreover, they were convinced not by abstract argument, but by concrete and somewhat coarsely material facts—which sufficiently explains the philosophic defects in their creed noted by Mr. Podmore. But once a spiritist is thoroughly convinced by what he believes to be irrefragable fact, his critical vigilance towards similar phenomena necessarily relaxes. And why should it not? Does not the same rule hold good elsewhere? If I am once convinced of the *bonâ fide* performance of a scientific experiment, I am not so much interested in its repetition, and so more easily imposed on by fraudulent imitations. Rumour has it that this principle is sometimes illustrated also by illegitimate precautions taken to secure the success of scientific experiments before popular audiences. At least there is a tale of a famous physicist who used to inflame his fire-sticks by friction—not without the surreptitious aid of a little phosphorus. Yet had I been a spectator at such an exhibition I should be a fool, not if I ascribed the fraud to the conditions of the performance, but if I inferred that friction could not produce fire. And the convinced spiritist may look at the frauds of the mediums in much the same way. Nor is he unreasonable from his own point of view. But his point of view is not that of science, and such tainted evidence is rightly considered to have no efficacy in producing a belief that has yet to be established. If the spiritists are indifferent to proselytism that is their own concern, but they are not necessarily beyond the pale of human reason.

Nor, again, is their theory as such logically inadmissible. It is no doubt often crudely stated—by people whose accounts would state any theory crudely, and, as Mr. Kipling says, would 'discredit the creation'. It is no doubt of exceeding antiquity, and so susceptible of being construed as "an instinctive utterance of primitive animism" (p. 18). But the opposition to these supernormal phenomena is equally antique, and it might as reasonably be suggested that the attitude of modern science only continues the instinctive dislike which everywhere has led to the prohibition of 'sorcery,' to the burning of 'witches,' and to the ascription of the phenomena generally to the agency of the devil. As Mr. Lang so well points out, the coincidences in the details of superstitions cannot be explained by tradition or collusion. The truth is that the 'spirit' theory rests upon spontaneous and persistent

peculiarities of the alleged facts themselves, and forces itself as a working theory even upon the most cautious and patient observers (as shown, *e.g.*, by the recent admissions of Dr. Hodgson with regard to Mrs. Piper's trances). The real offence of the spiritists with respect to it is that they do not use it as a scientific theory, as a basis for further investigation, but proceed to get absorbed in such of its practical corollaries as satisfy their emotional needs. But this simply shows that their motives are emotional, and not scientific.

To pass from a palliation of spiritism to that of the opposite extreme, *viz.*, of invincible scepticism, I cannot think Mr. Podmore's critical *via media* is likely to be more acceptable. He cannot hope to propitiate the implacable, the fanatic of an *a priori* scepticism. For in spite of all his scepticism Mr. Podmore is a revisionist, a man of open mind, a disbeliever in the policy of the *chose jugée*. A thoroughgoing champion of science considered as orthodoxy, therefore, can as little welcome Mr. Podmore's book as any other 'revisionist' publication. For he needs no argument to dispose of the phenomena he rejects. If he is truly logical, he rejects them *a priori*. Such phenomena subvert the whole system of science; *ergo* they are miracles; *ergo* they are impossible; *ergo* no testimony can in the slightest affect their incredibility. For it is always more probable that all sorts of improbabilities should have coincided, that any amount of testimony should be false, than that 'the thing that couldn't' should have occurred. Hence the sceptic *à la* Hume would make short work of what even Mr. Podmore would spare. In spite of Mr. Podmore's protestations (p. 8) that it is only a harmless working theory involving nothing transcendental, telepathy is just as obnoxious as the most startling of spiritist wonders. There are no degrees of the impossible. And with sufficient firmness in assuming hyperæsthesia, hallucination, mendacity and collusion all Mr. Podmore's best evidence could be got rid of. Indeed my only difficulty is to conceive what evidence would *not* yield to such solvents, what evidence could ever prove anything but a foregone conclusion. But such scruples would not perhaps perturb the Humian; he is safe unless he should be induced to descend into the arena of discussion, where weakness of the flesh might overcome him and tempt him to listen to the arguments of others or the testimony of his own senses.

And yet perhaps there is a logical flaw at the heart of his position. That any fact should really subvert the scientific order of nature seems infinitely more 'antecedently improbable' than the weirdest of alleged miracles. Yet the initial assumption of the Humian position is that certain disputed phenomena really would subvert the scientific order of experience.

That assumption is one which no 'intellectual' revisionist would accept. It issues from a deep distrust of the scientific order which it pretends to protect. It is necessarily unwarranted

by the facts which it rejects. For until the facts have been submitted to dispassionate scientific examination, it cannot possibly be asserted that they do not connect with admitted truth. As a matter of fact the connexion has not been made chiefly because no one has tried to make it. The people who did concern themselves with the alleged facts did not pursue scientific ends and so did not devise scientific theories; those who did not, made the indiscriminate ascription of the phenomena to spirits or devils a pretext for declaring them to be essentially incapable of scientific investigation. But as soon as any one looks for order, order begins to appear out of chaos, and hence, Sir W. Crookes' recent declaration in his presidential address to the British Association, that he is beginning to see "something like coherence among the strange and elusive phenomena, something like continuity between these unexplained forces and laws already known," is highly significant. The truth is that the true scientific spirit is all-pervasive, that the true scientific method is of universal application —to the psychology of angels, demons and spirits, if such things there be, as to that of men and beasts—what has hitherto been lacking has been the will to apply it.

But the feeling is growing that the time is approaching for the extension of science to regions of apparent experience hitherto abandoned to superstition, and Mr. Podmore's lucid survey of the field and critical sifting of the evidence cannot but contribute to strengthen public confidence in the work the Society for Psychical Research has carried on with so much patience and pertinacity. A hasty reader might indeed draw the inference that Mr. Podmore's results are mostly negative—nay, that telepathy itself was only a technical term to conceal a negation. But it cannot be too strongly emphasised that negative criticism like Mr. Podmore's is on a totally different plane from that which prevailed twenty years ago; it is criticism of the imperfections of a body of evidence which could not have come into existence but for the labours of the Society of Psychical Research. And the defects which he criticises are in most cases such as can be removed by improvements in the quantity and quality of the evidence. Such improvement there has been and will doubtless continue to be if the social factor continues favourable. This indicates a characteristic of 'psychical research' which might well have been emphasised by Mr. Podmore. So long as the subject is in its observational stage its progress necessarily depends largely on social sympathy. It is not enough that society should have desisted from its ancient sport of eliminating psychical sensitives at the stake. The superstitions and social fears which render so much evidence inaccessible or valueless must be abated, and be succeeded by an interest or co-operation which will lead to an intelligent observation and adequate recording of an appreciable fraction of such phenomena as spontaneously present themselves. For though we are like astronomers watching for sporadic comets that flare across the spiritual sky, we

can at least take care that none escape our notice nor fail of proper record. Of course if means could be devised for making the phenomena more experimental, the rate of progress might be greatly accelerated. But even so in view of the resistance which the violent prejudices of the extremists on both sides will continue to offer to a scientific revision of their beliefs, in view of the emotional perturbation which the investigation of such delicate matters seems so often to involve, it would require a sanguine man to expect any settlement of the subject in the next fifty years.

F. C. S. SCHILLER.

A Treatise on Universal Algebra with Applications. Vol. I. By ALFRED NORTH WHITEHEAD, M.A., Fellow and Lecturer of Trinity College, Cambridge. Cambridge: University Press, 1898. Pp. 586.

IN consenting to review this important volume for the readers of MIND I fear I have undertaken a task for which I am but indifferently qualified. My belief, before I received the book, was that it was almost wholly devoted to a discussion of the *general* principles of symbolic reasoning, with occasional appeals to mathematics and geometrical diagrams by way of illustrations. But this is not the case. Only a comparatively small portion of the work is devoted to what may fairly be called the general principles of symbolic reasoning; the rest is taken up with applications of these principles, as the author understands them, to the elucidation of Grassmann's *Calculus of Extension.* Now, of the latter work I know nothing except what I have been able to learn from Mr. Whitehead's presentation of it, and from a few references to it by other writers. So far as I can judge from these data, Mr. Whitehead has rendered great service to science by reducing to a comparatively simple and workable form a method of research which, as originally presented by its inventor, was, from all accounts, extremely obscure and difficult to apply.

In forming an opinion on the first portion of Mr. Whitehead's work (especially book ii., which treats of Symbolic Logic) I feel myself on surer and more familiar ground. Yet even here I find myself somewhat in a difficulty. Mr. Whitehead and I regard the subject of Symbolic Logic from different standpoints; and this fact renders it no easy matter for me to do full justice to his work. Alone, or nearly so, among logicians, I have always held the opinion, and my recent studies have confirmed it, that the simplest and the most effective system of Symbolic Logic is that whose elementary constituent symbols denote—not classes, not properties, not numbers, ratios, regions, or magnitudes, not *things*

of any kind—but *complete statements.* By a 'statement' I mean any sound or symbol, or any combination of sounds or symbols, *employed to convey information.* A subjectless and predicateless sound or symbol, like the warning "caw" of a sentinel rook, or the national flag of a passing ship, may be called an *elementary* statement; the formal grammatical propositions of ordinary spoken or written speech may be called *complex* statements. The ultimate units of expressed thinking, whether those units be individually communicated to ear or eye by single symbols or by many, are *statements;* and in no sphere or region of investigation can reasoning be expressed *without* those units. Since, therefore, statements, and statements alone, constitute the ever indispensable elements of all expressed reasoning, we should, in my opinion, first investigate the mutual relations of these statements, representing each by its own independent symbol, and call this process of investigation *Pure Logic.* The moment we begin (as in mathematics and in the traditional logic) to represent *things*—things which are not statements—by separate symbols, we are no longer in the domain of *Pure* (or Abstract) Logic, but in that of *Applied* Logic. A system of Symbolic Logic thus built up wholly of statements has one great advantage which no other system can possibly possess, namely, the advantage of *homogeneity of matter.* Mr. Whitehead, who was acquainted with my earlier, but not with my recent, papers when he wrote, admits (p. 112) that the existing systems of logic—the traditional as well as the modern symbolic—can be thus entirely constructed on a basis of pure statements; but he has preferred to follow the method of Boole as simplified by Venn, Schröder, Peirce and others. In this he was quite right. For one thing, the principle which underlies my method, however important, did not come within the scope and purpose of his work; and, for another, it did not appear (in my earlier papers) to lead to any essential difference in the symbolic processes. That this is no longer the case my recent papers in MIND and in the *Proceedings of the Mathematical Society* will show; but the new development is still further removed than the old from the allied algebras which it has been the great aim of Mr. Whitehead to unite into one general comprehensive system. This task, judging of the whole from my knowledge of a part, I consider him to have accomplished with rare ability.

His opening chapter, "On the Nature of a Calculus," is very interesting, and may be understood by any one of ordinary education and intelligence. If the reader knows something of common algebra he will grasp the author's meaning more easily; but, for much of this chapter, even this modicum of preliminary knowledge is not absolutely indispensable. When, however, we enter upon the second chapter, which treats of *Manifolds,* we find ourselves on very different territory. A reader previously unacquainted with the subject cannot read this straight through, as he would a novel or a paragraph in a newspaper; he will have to make

frequent halts, and sometimes very long halts, in order to reflect. This is not altogether the author's fault. The truth is that the subject of manifolds is extremely difficult to understand, and still more difficult to explain. The meaning of the word *manifold*, as defined by its inventor, Riemann, is so very general, not to say vague and attenuated, that it may be called the *ether* of mathematical conceptions. From some point of view or another almost anything may be regarded as a manifold and resolvable into constituents which are also manifolds. Mr. Whitehead might, I think, with advantage have restricted his discussion to the general characteristics of the manifolds which enter into his compared algebras, and he should have illustrated these more copiously with simple and concrete examples.

In the third chapter we have an explanation of the principles of "Universal Algebra". "Universal Algebra," says the author, "is the name applied to that calculus which symbolises general operations, defined later, which are called Addition and Multiplication". From this definition it is clear that the word *universal*, as Mr. Whitehead uses it, must be understood in a somewhat limited sense. We now learn more precisely the particular lines of investigation which the author intends to follow, and the order in which he takes the special algebras to which he limits his discussion. "The Algebra of Symbolic Logic," he says, "is the simplest possible species of its genus and has accordingly the simplest interpretation in the field of deductive logic. It is, however, always desirable while developing the symbolism of a calculus to reduce the interpretation to the utmost simplicity consistent with complete generality. Accordingly, in discussing the main theory of this algebra, the difficulties peculiar to Symbolic Logic will be avoided by adopting the equally general interpretation which considers merely the intersection or non-intersection of regions of space." Farther on, on the next page, he says: "This spatial interpretation, which also applies to the algebra of Symbolic Logic, will in some form or other apply to every special algebra, in so far as interpretation is possible. This fact is interesting and deserves investigation. The result of it is that a treatise on Universal Algebra is also to some extent a treatise on certain generalised ideas of space."

Now, if Mr. Whitehead, in the preceding quotations, only means that appeals to diagrams and to spatial problems are of great utility as particular illustrations of general theorems in Symbolic Logic, my opinion wholly coincides with his. But, if I understand him aright, he means much more than this. His words seem to imply that to every valid formula in Symbolic Logic, no matter how abstract the region of thought, and no matter what the elementary symbols may be defined as representing, there always corresponds an analogous formula (*symbolically* identical) of which the elementary symbols represent spatial magnitudes; so that any argument referring to the non-spatial region of

thought has its symbolic *double* (so to speak) in the spatial region, and *vice versâ*. A similar assumption appears to be accepted by the whole Boolian school of logicians as a universal certainty on which the symbolist may always rely with absolute confidence. Yet the assumption, like the whole system of Inductive Logic as Mill understood it, rests upon a fallacy, and reliance upon its validity has led not only Boole, but (as I have recently shown elsewhere) some of the ablest living logicians into demonstrably false conclusions. They found that, *in all the numerous cases they had examined*, the formulæ of the logic of Pure Statements had their exact analogues in the logic of Concrete Quantity, and they inferred, very naturally but quite erroneously, that this must also hold in the infinite number of cases which they had *not* examined. The explanation is this. The Boolian calculus, even when it deals with secondary propositions, is never a calculus of *Pure Statements*. Its elementary constituents, x, y, a, b, etc., as Boole is very careful to state, never represent statements directly; they always represent the *fractions of time* (referred to some understood arbitrary whole unit) during which the various statements in question are true; and it is quite clear from Boole's language that he considered this convention as a necessary and fundamental principle. The logicians above referred to have not all accepted Boole's exact views upon this point, but his quantitative conventions have, nevertheless, coloured their thoughts and *restricted the field of their experimental researches. Within* this field they invariably found symbolic coincidence of formulæ combined with divergence of interpretations; and it never occurred to them that outside the Boolian boundary there was a far more extensive region of thought on which they had not yet experimented, and in which the law of symbolic coincidence could no longer be relied on.

A calculus of Pure Statements bears pretty much the same relation to the Boolian scheme and its more modern developments as ordinary algebra bears to geometry. Up to a certain point there is coincidence of formulæ, and then separation. In ordinary mathematics some algebraic formulæ, such as

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2),$$

may, *within the limits of certain conventions as to units, etc.*, be interpreted in terms of real geometric squares and cubes; but this line of interpretation fails for formulæ involving higher powers of their elementary constituents. For these a geometric interpretation may be still possible, but only on condition that we make a fresh start and *adopt wholly different conventions;* whereas the purely algebraic interpretation (for the higher as for the lower powers) remains clear, intelligible and homogeneous throughout. So with Symbolic Logic. In Pure Logic the symbol A^B, or any arbitrary equivalent, asserts that the *statement* A belongs to the class of statements denoted by B. In Applied Logic

also the symbol A^B may be used to assert that the concrete and material *thing* denoted by A belongs to the class of concrete and material *things* denoted by B. So far there is symbolic coincidence. But now take the symbol A^{BC}, which is short for $(A^B)^C$ and asserts that the statement A^B belongs to the class of statements denoted by C. Here, from the standpoint of Pure Logic, A is a statement, B is a statement, C is a statement, A^B is a statement, and A^{BC} is a statement, so that we have homogeneity throughout. But we cannot get this homogeneity in Applied Logic. In Applied Logic A and B may both denote concrete things or classes; but farther we cannot go. By virtue of our definitions, C cannot denote a concrete thing; neither can A^B nor A^{BC}. These, within the limits of our definitions, *must* denote statements, and *cannot possibly denote anything else*. Similarly for A^{BCD} and for statements of still higher degrees. Thus, as soon as we pass the limits of *primary* statements and get into statements of the secondary, tertiary, etc., degrees, we enter an abstract region of thought (including many important problems in probability) to which none of the Boolian systems can be applied. Any statement, no matter what its degree, can be spoken of as true or false, certain or uncertain, possible or impossible, probable or improbable, within more or less exact limits according to our data; but none of these epithets can be applied to any portion of space or time, or to any concrete subject whatever; nor can we find any concrete homogeneous substitutes, so far analogous to these abstractions as to be interpretable in the same formulæ or symbolic operations.

Of course this criticism in no way affects the value of Mr. Whitehead's work, even if that work were restricted to that small part of it on which I may without presumption venture to express an opinion. On the contrary, he has, I think, done even more for exact science than he had contemplated when he embarked upon his arduous undertaking; he has traced out the line of analogy running through his compared group of algebras so distinctly that it enables one to see not only the very large class of problems to which these algebras can be applied, but also the limits of their application. This is very important, and its importance must be accepted as my excuse for drawing attention more to the *boundary* within which his allied algebras can effectively operate than to the undoubted value of their operations *within* that boundary.

Apart from these questions of general principle and of interpretation, on which, perhaps, no two logicians could be found in complete agreement, I regard Mr. Whitehead's five chapters on Symbolic Logic as an admirable epitome (with some original improvements) of the results and processes discovered by previous writers; the whole subject being presented as it appeared to him from his standpoint of *comparative* algebra. In the matter of notation he adopts Boole's horizontal bar, and in very much the

same sense, but with some modification in complex cases. Thus he writes

$$\bar{}\,(x + y) = \bar{x}\bar{y}$$

where I should write

$$(x + y)' = x'y'$$

One objection to the horizontal bar is that both in actual operations and on the printed page separate bars are apt to run into each other, so that they look like one continuous bar. For example, $\bar{x}\bar{y}$ cannot always be easily distinguished from $\overline{xy}$, which has quite another meaning. Mr. Whitehead also adopts Boole's symbol o to denote what he calls the "*null element*"; but he substitutes the symbol i for Boole's symbol 1 to denote the *universe*. These symbols correspond respectively to my symbols η and ϵ, which denote *impossibility* and *certainty*. Mr. Whitehead employs no symbol (nor, so far as I know, does any other writer) corresponding to my probability symbol θ, which I use to denote a statement that is *possible* but *uncertain*. To express "subsumptions," or "regions incident in other regions," he borrows Schröder's symbols, $-\!\!<$ and $>\!\!-$, which correspond to my symbols of implication, : and !; the first or the second symbol being used in each case, according to the *direction* of incidence or implication. For myself, I must own to a rooted prejudice against absolutely new and strange-looking symbols. When there is no risk of ambiguity, I think it much preferable to employ an old symbol (or combination of symbols) in a new sense. Moreover, this question of the choice of symbols involves an important principle. The time has come, I believe, for taking a totally new departure. I see no reason why we should treat our symbols of relation, +, :, =, indices, fractional forms, etc., with more respect than we do the ordinary letters of the alphabet. Just as any letter x may denote one thing in one problem and quite another thing in another problem, so any symbol of relation, or any combination of symbols, such as $x + y$, x^y, etc., may be defined as meaning one thing in one kind of investigation, and defined afresh as meaning quite another thing in another and totally different kind of investigation. If proper care be taken in our choice of symbols the context (as in ordinary speech) will prevent all risk of ambiguity.

Mr. Whitehead's treatment of the "Existential Import of Propositions" is interesting and original; but, unfortunately, the symbolic process which he here employs is not of a kind that can, with justice to the author, be described briefly. I was at first under the impression that his notation and mine in dealing with this subject were mutually convertible; but, on closer examination, I find that they move along different paths and have but few points in common.

HUGH MACCOLL.

Die Philosophie der Geschichte als Sociologie. Von Dr. Paul Barth. Erster Theil: Einleitung und Kritische Uebersicht. Leipzig: O. R. Reisland, 1897. Pp. xvi., 396.

Dr. Barth has done himself some injustice by publishing this first volume of his work before the second was ready. The elaborate survey of sociological systems will certainly embarrass the reader who does not bear in mind that it is to serve as a groundwork of what is to come, and, even then, he will scarcely avoid the reflexion that, had the author had the end in sight, a sense of symmetry and proportion would have forced him to lighten the present contribution of at least half its bulk. The hope is expressed in the Preface that the book may not be too historical for the philosophers, nor too philosophical for the historians. Judging it from the point of view of the former, the historians seem to have come off decidedly the best. The historical matter, moreover, is given too much in the form of notebook analyses, and needed much throwing into shape before being presented to the public.

The Introduction (filling the first thirteen pages) discusses the meanings to be assigned to the terms "history" and "philosophy of history," and then the relation of Sociology to the latter. Dr. Barth thinks a complete Sociology would coincide absolutely with a Philosophy of History, and would differ in nothing except the name. Wundt attempted in his *Logik* to establish a demarcation thus. Sociology was concerned with the conditions (Zustände) of human society, in particular epochs and countries; history with the events (Vorgänge) through which these conditions have arisen. It was true that society is an historical product, never remaining stationary in the stream of development, but for all that one was compelled, for purposes of historical investigation, to regard certain definite social conditions, lying between two rigidly determined time limits, as relatively constant. As against this view Dr. Barth urges that, admitting the relative stability of many historical conditions, they are nevertheless only explicable when account be taken of the way in which they have come to be, and that the distinction, therefore, between social statics and social dynamics is untenable. Granting this objection, however, it is valid only against a separation, like that of Wundt's, of sociology from the *science* of history. A *philosophy* of history, endeavouring to do for *all* history what the scientific historian does only for a particular period, *viz.*, discover the meaning or underlying principle of the whole development, may or may not be possible; in either case it is unaffected by Dr. Barth's argument. And if he reply, as doubtless he would, that there are many such principles, the question would still remain whether then they simply stand side by side as a multiplicity, or do not rather constitute a hierarchy, leading up to one, which is all-inclusive and supreme.

This, however, is almost the only instance in which the author comes into conflict with Wundt, and the book may not unfairly be regarded as the attempt of a disciple to work out the principles of the Wundtian Psychology on the field of human life generally. The "Critical Survey" is divided into three sections. The first deals with the sociological systems; the second with such "philosophies of history" (using the term in the older sense) as retain a significance for present-day thinking, but which, in the author's view, manifest their one-sidedness; the third with the question whether human society really lends itself to scientific treatment.

The first section opens with an analysis of the writings of St. Simon, to whom the origin of sociology as a science is credited. This is followed by an account of the first system of sociology, that of Auguste Comte, and the succeeding chapters deal with the three diverging currents of sociological doctrine that have sprung from the Comtian system, *viz.*, (1) that based on the method of classification (Littré, De Roberty, De Greef, Lacombe); (2) the biological system (Spencer, Lilienfeld, Schäffle, Fouillée, Worms); and (3) the dualistic system (Ward, Mackenzie, Haurion, Giddings). Of these, the systems of Comte and Spencer receive the fullest treatment, and the critical remarks of the author are often penetrating and suggestive.

In reference to Comte, for example, he is particularly successful in showing how far from being fulfilled is the claim of having presented a purely objective account of historical development. Viewing the history of humanity as an immanent teleological process, subordinate to the attainment of one end, *viz.*, the age of Positivism, Comte was logically bound to regard the various stages of the process as means to this end, and the means themselves as a series of causally (presumably in Wundt's sense of "psychical causality") connected factors. As instance of failure to satisfy this requirement, the unsatisfactory position of the metaphysical, as the intermediary link between the theological and the positivistic, stage, in the celebrated "Law," is cited. "The way in which Metaphysics arises out of Monotheism ought," says the author, "to have been deduced as a necessary consequence from the nature of the human intellect. But no such deduction is given. It is simply contended that intermediary links are necessary, that transitions do not take place directly, but why exactly metaphysics should form the link between theology and positivism is left wholly unexplained."

The chapter on Spencer, for the most part a reproduction of a review article, published in 1893, contains some interesting criticism upon the carrying out of the biological analogy. The author contends that Spencer has failed to note both many essential likenesses and many essential unlikenesses, of the social and animal organisms. He has failed to observe that the unit of society regarded from the point of view of growth differs from the unit of society regarded from the point of view of structure. The former

can at no time be other than the family, never the individual, which Spencer, following Maine, assumes to be the unit of *modern* society. The unit of a social structure, on the other hand, is the individual, for only as such, and not as member of a family, does a man enter into the various social organs, such as the army or that of industrial workers. Again, by treating society purely as a "Naturwesen," Spencer is oblivious of the vast influence of what Wundt calls the "Wachstum der geistigen Energie" in social development. The essential feature of such development, the emancipation of man from nature and the gradual formation of a spiritual organism, advancing step by step with the growth of apperceptive, as distinguished from associative, thinking, is consequently ignored. Of interest is also the argument of Dr. Barth, as against Spencer and Fouillée, in favour of the conception of the "self-consciousness" or "ego" of society.

Among the writers dealt with in the fifth chapter is J. S. Mackenzie, of whose *Introduction to Social Philosophy* a fairly accurate account is given. This author will, however, scarcely recognise himself as one of the advocates of a "dualistic sociology"! Dr. Barth has evidently failed to realise that in England, at least, Hegelian modes of thought are still "lebendig".

The second section of part i., under the heading "Einseitige Geschichtsauffassungen," consists of seven chapters. The first, dealing with the individualistic point of view, discusses the "great man" theory, in connexion with the writings of Taine, Bourdeau, Odin and Lamprecht, not without adding some useful reflexions of its own. Especially happy is the author in showing, as against Bourdeau, that a mere summation of intelligences does not imply an enhancement of intelligence, that the difference between genius and mediocrity is qualitative and not quantitative—a truth, by the way, which would bear considerable expansion in view of some recent metaphysical theorising. The longest, and the most valuable, chapter in this section is, however, the last, devoted to the interpretation of history from the point of view of Economics, as represented by Durkheim (for whom the animating principle of historical development is the division of labour), Patten, Karl Marx, Engels and the followers of Marx. Dr. Barth's criticisms here are judicious and convincing. He undoubtedly makes good the position that not only is the method of production not the sole determining conditions of social movements, but from the first other factors have been instrumental (in primitive man, *e.g.*, animistic ideas), and the higher the stage of development reached and the richer the supply of ideal elements present, the less decisive in significance for the tendencies of a people and of a period does the existing economical situation become. The preceding chapter, which, under the title of "ideological," is concerned mainly with the views of Hegel, is far too slight and fragmentary. Whilst admitting a logical necessity working in history and the soundness of discriminating between epochs of construction and

of dissolution, Dr. Barth condemns the Hegelian theory for not attempting any psychological explanation of the origin, and still less of the decay, of the ideas, that have been operative in the evolution of society. The force of this objection depends, however, upon the assumption that the historical process is primarily a psychological one—an assumption contrary to the spirit of Hegel's philosophy, and in no way confirmed by Dr. Barth's own treatment of social development.

In a third section, the author has to face the question, raised by Dilthey, whether a scientific treatment of history is after all possible, and answers it by emphasising the distinction between the conceptions and the methods of physical science, denying the applicability of the former but insisting upon that of the latter to mental phenomena.

The concluding pages give a brief sketch of the author's own view of the process of historical development, a view which he promises further to substantiate in a second volume. In regard to primitive societies, he follows closely on the lines of M'Lennan and Morgan, making use also of Tylor's researches into the origin and influence of animistic beliefs. When under the protection of the *gens*, the monogamous family arises, and the ancient communism is, on that account, broken up, society is saved from the dangers of family egoism by the lawgiver, who creates artificial means (abstract laws, deriving authority from being ascribed to the commonly recognised Nature-gods, which are thus endowed with moral attributes) of restoring the threatened unity. The state arises, and with it the sundering of the artificially formed society into classes (Stände) with rights and duties of their own. The author traces the decay of the "ständische Gesellschaft" in ancient Greece and Rome, the "Auflösung" of that in the middle ages through the system of absolutism, its reappearance in the sixteenth century, and the subsequent supremacy of the *laisser faire* principle. The present age he regards as a period of decay. Concentrating its strength upon inductive and analytical pursuits, it has lost the capacity, and has ceased to feel the need, of creating, and that through its want of faith in the power of spiritual personality, without which true Art is impossible. Not until a new sense of the infinite worth of moral and æsthetic ideals is awakened in all classes of the community will the triviality of modern life be overcome.

We shall look forward with interest to the completion of a work, for which the foundations have been so laboriously laid.

G. Dawes Hicks.

VI.—NEW BOOKS.

Studies of Good and Evil. A Series of Essays upon Problems of Philosophy and of Life. By JOSIAH ROYCE, Professor of the History of Philosophy in Harvard University. New York: D. Appleton & Co., 1898. Pp. xv., 384.

"I HAVE called these papers *Studies of Good and Evil.* The title is in its nature wide. It commits the essays contained in this volume merely to one character. They are all, directly or indirectly, contributions to the comprehension of the ethical aspects of the universe. The papers are of very various relations to technical philosophical issues. Four of them are essays in literary and philosophical criticism. One is directly concerned with the effect of the 'Knowledge of Good and Evil' upon the character of the individual man. One is a contribution to the metaphysical 'Problem of Evil' in its most general sense. Five, while dealing with metaphysical and psychological problems connected with the nature and relationships of our human type of consciousness, are somewhat more indirect contributions to the ethical interpretation of our place in the universe. One is an historical study of a concrete conflict between good and evil tendencies in early California life" (Introduction, p. v.).

The first Essay, entitled "The Problem of Job," deals with the existence of evil in the world in relation to the Divine Being. Prof. Royce's solution of this problem is by him identified with the solution given to Job himself. The answer to Job is: "When you suffer, *your sufferings are God's sufferings*, not his external work, not his external penalty, not the fruit of his neglect, but identically his own personal woe. . . . The true question then is: Why does God suffer? The sole possible, necessary and sufficient answer is: Because without suffering, without ill, without woe, evil, tragedy, God's life could not be perfected" (p. 14). All moral development involves the sacrifice of a lower to a higher interest, and with the necessity for this sacrifice suffering and evil are essentially connected. The same thesis is developed from the purely human point of view in the fourth Essay, on "The Knowledge of Good and Evil".

The second Essay, on "The Case of John Bunyan," is a most interesting piece of psychological analysis, executed with masterly ability and sympathetic insight. The third, "Tennyson and Pessimism," treats of the contrast between Tennyson's earlier and later *Locksley Hall.* Prof. Royce points out that the optimism of the first poem is the sort of day-dreaming which leads to disillusion and melancholy. In the later poem, Tennyson has become alive to the reality of things, and to the necessary conditions and limitations imposed by this reality. His later mood is relatively the saner and truer and, in a sense, the more optimistic, because it forms a transition to an optimism which will stand wear and tear. In the fifth Essay, the ethical despair of Huxley in face of the dominance of non-ethical natural laws is shown to be founded, not in the

nature of things, but in an opposition between two subjective points of view, the naturalistic and the ethical. In the sixth Essay, "The Implications of Self-Consciousness," Prof. Royce takes up the old Cartesian argument, and tries to show, successfully, as we think, that the limitations of our finite self-consciousness imply an all-embracing consciousness, which in some sense is all that we aspire after. Perhaps this argument has never before been developed with so much force and lucidity.

The following Essay treats of "Anomalies of Self-Consciousness". It is well known that perversions of the concept of Self are produced by disturbing organic changes. Prof. Royce most ingeniously suggests that the strange organic sensations have this effect because they are characteristic of certain emotions involving specific attitudes towards the social environment.

The eighth Essay, on "Consciousness and Nature," is of special importance. It treats of the nature of our consciousness of the external world. According to Prof. Royce, those experiences have the stamp of external reality, which are an intersubjective possession. "What you can experience as well as I, is as such a physical fact. . . . If ten stones lie on the highway, and you and I count them, common-sense supposes that though your counting of ten is not my counting of ten, though your perception of the stones is not mine, though your inner life is in no fashion, here noteworthy, identical with mine, still the real stones that I count are identically the same as the real stones that you count." Prof. Royce argues that this common-sense notion of nature is not illusory. We cannot maintain that in truth each human being is aware of a separate fact presented only to himself, though it may resemble the objects severally presented to others. Such an assumption would destroy the basis of social consciousness; for it would imply that when many persons suppose themselves to be thinking about the same person each of them is thinking about a different person. This, according to Prof. Royce, is a *reductio ad absurdum*. This discussion of the nature of external reality is valuable; but in our opinion it does not go far enough back. The germ of the distinction between Self and Not-Self lies in the perceptual consciousness, and precedes the stage of ideal construction and intercommunication. The external reality of the bird to the cat which hunts it does not consist in the bird being a common possession of the social consciousness of cats or other beings.

The book concludes with four Essays, on "Originality and Consciousness," "Meister Eckhart," "An Episode of early California Life," and "Jean Marie Guyau". These are very interesting, but not of the same far-reaching philosophical importance as those which precede them.

In conclusion, we may say that *Studies of Good and Evil* is a book which imperatively demands to be read, and that reading it is a keen pleasure. It is to be commended not only to philosophers by profession, but to all who are interested in the ultimate problems of life.

EDITOR (G. F. S.).

The Evolution of the Idea of God: an Inquiry into the Origins of Religion. By GRANT ALLEN. New York: H. Holt & Co., 1897. Pp. ix., 447.

The Making of Religion. By ANDREW LANG. London, New York and Bombay: Longmans, Green & Co., 1898. Pp. v., 380.

Mr. Allen's work deals with three questions of origin: with the origin of polytheism, of monotheism and of Christianity. Accepting and developing Herbert Spencer's ghost-theory, the author maintains that

"corpse worship is the protoplasm of religion, while folk-lore is the protoplasm of mythology". The worship of the dead man is thus raised to a supreme and unique place in the god-making process. The book is flowingly and interestingly written. The technical journals have pronounced the hypothesis to be one-sided, and the argumentation to be special pleading. Nevertheless, it is always worth while in science to work a working hypothesis to its bitter end; and we hope that Mr. Allen will not be daunted in his intention of publishing further volumes which shall treat of the evolution of religion in greater detail.

While Mr. Allen seeks to rehabilitate Euhemerism, Mr. Lang undertakes the same office for the degeneration theory. His theory is that primitive man worshipped a single supreme being, who was later obscured by the rise of ancestor worship and the ghost gods. The savage may have 'blundered' into a belief in God and the Soul, by observation of those supernormal phenomena which are still amongst us, under investigation by the Society for Psychical Research. Unfortunately, the faith of the 'scientific' reader in the exhaustiveness of Mr. Lang's quotations is shaken by his omission of references to the work on telepathy published recently in the *Philosophische Studien*, and to that on crystal-gazing and 'material' coincidences which has appeared in the *Psychological Review*.

An Introduction to the History of Religion. By Frank Byron Jevons, M.A., Litt.D., Classical Tutor in the University of Durham. London: Methuen & Co., 1896. Pp. 443. Price 10s. 6d.

Perhaps the most distinctive feature of this work is the emphasis which it lays on totemism. The first deities, according to Mr. Jevons, are totem deities; and the ideas and practices connected with totem-worship colour and determine the whole evolution of religion. In particular, the idea of communion between the god and its worshippers is initially a totemistic idea. Hence springs the sacramental view of sacrifice as establishing union and communion between divine and human beings. The revival of religion connected with the Eleusinian and similar mysteries is really a revival of the totemistic point of view.

Another marked feature of the work is the sharp distinction drawn between magic and religion, even in primitive stages of human development. Religion is the attitude of man towards powers which he regards as uncontrollable by human beings. Magic, on the other hand, is a mode of procedure by which he thinks he can direct and command natural forces. The distinction is no doubt justified in principle; but, as a matter of fact, we often find the magical and the religious points of view inextricably blended, and this Mr. Jevons fails to recognise.

The author's treatment of taboo is very interesting. He finds in it the origin of the conception of property.

On the whole, Mr. Jevons has produced a good and useful book, and in many points he is original and suggestive. The prominence which he gives to totemism is one-sided; but he has certainly succeeded in bringing out very lucidly its peculiar importance in the development of religion.

Ignorance. A Study of the Causes and Effects of Popular Thought. By Marcus R. P. Dorman, M.A., M.B. Cantab. London: Kegan Paul, Trench, Trübner & Co., Ltd., 1898. Pp. xx., 328.

Full of interesting matter. The work is divided into three books. The first treats of "Collective Ignorance" and especially of "emotional waves" and "democratic delusions". In book ii. the chief causes of

ignorance are investigated. The psychological causes are grouped under the heads "Mental Grooves," "Misapplied Emotional Forces," and "Deficient Intellectual Powers". Under the first head, Mr. Dorman is particularly hard upon metaphysicians. But here the metaphysician will discern signs of ignorance in Mr. Dorman himself. It may be mentioned that he groups Huxley with Hume and Kant as a leading representative of metaphysical thought. Book iii. deals with some of the effects of ignorance, such as "The Art of the Uncultured," the attitude of the manual worker to the capitalist, "The Mind of Woman". Book iv. contains educational suggestions "founded on the desirability of allowing every one, as far as possible, an opportunity of becoming acquainted with the researches of the leading thinkers, and to show the great necessity for independent thought. The main point is, however, to ensure an equable development of all the physical and psychological functions in every direction" (Preface, p. viii). Mr. Dorman is from the nature of the case dogmatic. From the nature of the case he must pose as omniscient. Specialists, judging each in his own department, are likely to find this omniscience somewhat superficial. But human omniscience cannot be otherwise than superficial except in the case of a Leibnitz or Helmholtz. Mr. Dorman's book was worth writing.

The Origin and Growth of the Moral Instinct. By Alexander Sutherland, M.A. London: Longmans, Green & Co., 1898. In two volumes. Pp. xiii., 461; vi., 336. Price 28s.

This is a well-written book, and it is evidently the outcome of much patient industry. The author has accumulated a vast mass of material bearing on the development of what he calls "Sympathy" in animals and man. There is much that is instructive and interesting in his work; but taken as a whole it is a failure. Mr. Sutherland professes to trace "with unbroken continuity" the development of our "moral instincts" from the lower stages of animal life "through lowliest savage [*sic*] to the noblest of men". It cannot be said that his success is at all proportioned to his industry. Indeed, he seems to overlook the most elementary conditions of the problem which he seeks to solve. Morality is for him essentially identified with what he calls "Sympathy," and this seems to include all instinctive impulses which directly benefit society, animal or human. He fails to see that morality and the development of morality is bound up with personality, with the unification of conative tendencies in an organised system, and that this again is essentially connected with the growth of conceptual consciousness. It is his blindness on this point which leads him to think he has traced with unbroken continuity the unfolding of the moral consciousness from its primitive beginnings in the lower forms of animal life up to the noblest of men. The truth is, that he has scarcely touched the development of morality in the proper sense at all.

The Wonderful Century. By A. R. Wallace. London: Swan Sonnenschein & Co.; New York: Dodd, Mead & Co., 1898. Pp. x., 400.

This book falls into two parts: a shorter, dealing with the 'successes,' and a longer, dealing with the 'failures' of the nineteenth century. The former, written in a chatty, reminiscent style, is as successful as the century itself; in the latter Dr. Wallace mounts his various hobby-horses, and intermixes much exaggeration and extravagance with his scientific good sense and solidity of judgment.

We are concerned here with only two chapters, those on the neglect of phrenology and on the opposition to hypnotism and psychical research. The first presents the case for phrenology in a strangely *ex parte* way. No one who knows the literature of phrenology will be able to accept Dr. Wallace's account of it. As for the radical error of phrenology, it is of course the psychological error of regarding mind as a bundle of faculties, rather than as a stream of processes or system of functions. That Huxley should not have seen this (p. 182) is not surprising to those who have read his little book on *Hume*, and acquainted themselves with the psychology that underlies it. Nor is Dr. Wallace happier in his championship of psychical research,—to say nothing of the fact that, with such protagonists as Sir W. Crookes upon the scientific, and Mr. Andrew Lang upon the literary side, the 'problems' of psychical research are rather likely to crowd out those of psychology proper than to be themselves ousted from the field.

The Study of the Child: A Brief Treatise on the Psychology of the Child, with Suggestions for Teachers, Students and Parents. By A. R. Taylor. International Education Series, No. 43. New York: D. Appleton & Co., 1898. Pp. xliii., 215. Price $1.25.

The American book market is just now flooded with works, of all degrees of merit, upon child study and educational psychology. Some, like Dr. Oppenheim's *Development of the Child*, possess a permanent value; many have the stamp of the ephemeral clearly upon them. The present work is somewhat difficult to estimate. The editor (Dr. W. T. Harris) calls it "sound and wholesome"; and so, for the most part, it is on its practical side. The psychology is scrappy and the biology hazardous; for proof of the former statement one has only to refer to the definitions of will, feeling and attention (pp. 106 ff., 114, 124), for proof of the latter to the discussion of heredity (pp. 182, ff.). But the author's enthusiasm, modesty and constant reliance upon his own teaching experience may go far to recommend him to the teachers and parents to whom he appeals. The student will pass on to writers of a more severe type.

The book begins with chapters on the senses, apperception (consciousness and attention), symbolism, muscular control, feeling and will. Then follow discussions of the intellectual functions, habit and character, instincts and plays, manners and morals, normal and abnormal development, stages of growth, fatigue, etc. An Appendix gives a selected list of reference books and papers.

The Psychology of Peoples: its Influence on their Evolution. By G. Le Bon. London and New York: Macmillan & Co., 1898. Pp. xx., 236. $1.50.

M. Le Bon is already favourably known to English readers by his recently translated *Psychology of the Crowd*. In the present volume he has gathered together, in brief summary, the conclusions of the various works in which he has treated of the history of civilisations. The style is clear and forcible, tending, indeed, at times to an almost brutal frankness; and the book grows in interest as one reads. The contrast drawn between the Latin and the Anglo-Saxon races, the pictures of North and South America and the discussions of Japan and India, are of especial interest.

The author's central thesis is that chance, environment and institutions play but secondary parts in the history of a people. Character (race) is the important thing. This character—a people's morality and

conduct—is determined mainly by its ancestry. After character, ideas, and particularly religious ideas, are the most important factors in the evolution of a civilisation. The possession of a small number of highly developed minds is what differentiates a superior from an inferior race.

Human Immortality: Two Supposed Objections to the Doctrine. By W. James. Boston and New York: Houghton, Mifflin & Co., 1898. Pp. ii., 70. $1.00.

This, the Ingersoll lecture for 1898, deals with the two questions: How can we believe in a life hereafter if our inner life is a function of our cerebral convolutions? and: How can we accept the "incredible and intolerable number of things which, with our modern imagination, we must believe to be immortal, if immortality be true"? As for the former, the brain either produces consciousness or it merely combines or transmits it. The theory of combination (mind dust) is not here touched on: the theory of transmission is defended as against that of production. As for the latter, "the tiresomeness of an over-peopled heaven is a purely subjective and illusory notion, a sign of human incapacity, a remnant of the old narrow-hearted, aristocratic creed". The lecture is written with Prof. James' accustomed vigour and brilliancy. The book ends with twenty-four pages of notes and references.

Thomas Reid. By A. Campbell Fraser (Famous Scots Series). Edinburgh and London: Oliphant, Anderson & Ferrier, 1898. Pp. 160. Price 1s. 6d.

Not long ago it was very much the fashion to speak disparagingly of Reid. Now the tide has turned. There is good reason for this change of opinion. Reid in his life-long battle against the "doctrine of ideas" was by no means beating the air. It is essentially necessary to emphasise that our knowledge is a knowledge of objects and not of the states of consciousness which cognise them. By this simple contention, Reid struck the deathblow of a crowd of fallacies. It is not, however, this part of Reid's work on which Prof. Fraser appears inclined to lay most stress. What appeals to him is rather the doctrine of "common sense". The appeal to common sense is, as Prof. Fraser points out, a "final appeal to the divine in man, latent in each individual man, in and through whom the universe is gradually interpreted as a revelation of perfect reason or perfect goodness" (p. 158). No doubt this appeal has a substantial justification, though it cannot be maintained in the shape which Reid gave to it.

It seems scarcely necessary to say that the life of Reid is admirably told by Prof. Fraser. We wish that he had quoted the letter to Dr. Gregory on the Origin of Language, a wonderful anticipation of the results of modern research.

The Play of Animals. By K. Groos. Translated by E. L. Baldwin, with Preface and Appendix by J. M. Baldwin. New York: D. Appleton & Co., 1898. Pp. xxvi., 341.

We are glad to welcome Prof. Groos' already famous work in an English dress. The text of the present edition is practically that of the German original, though there are few revisions and omissions. Prof. Baldwin supplies a Preface, which is for the most part a reprint of his review in *Science*, 26th February, 1897, a number of footnote references, and an Appendix on Organic Selection, reprinted from *Science and Nature*, April, 1897.

Miss Baldwin's translation is accurate and fairly readable; we have noticed slips only on pp. 24, 106, 108 ("tumbled about some"!). A humorous printer makes the nurse "scald" the children under her care; and modernised spelling tells us that the dog loves the "curb" (kerb). It is regrettable that many works which are familiar in English translations should still be cited in German form. The signs that call attention to footnotes are ingeniously ugly, and very disturbing to the reader.

The Story of the Mind. By J. M. Baldwin. Library of Useful Stories. New York: D. Appleton & Co., 1898. 16 mo. Pp. vii., 236. Price 40 cents.

In this little volume Prof. Baldwin has gathered together his views of psychology at large, quoting freely from his previous works, "relying frankly on his own experience, and in debatable matters giving his own opinions". The result is a compendious Handbook to Baldwin, very useful in view of the magnitude of the author's recent output and the wide range of periodicals over which his essays are scattered.

The ten chapters deal with the Science of the Mind, What our Minds have in Common (introspective psychology), the Mind of the Animal and of the Child, Body and Mind, Experiment, Suggestion and Hypnotism, the Training of the Mind, the Individual Mind and Society, the Genius and his Environment. An appendix gives a selected list of works in English.

The Unconscious Mind. By Alfred T. Schofield, M.D., M.R.C.S. London: Hodder & Stoughton, 1898. Pp. xv., 436. Price 7s. 6d.

The author truly remarks in his Introduction that his book "well-nigh appears to be little more than a collection of extracts". It cannot be said that he has either added to our knowledge of psychology, or presented what is already known in a specially luminous or forcible manner. But doubtless the work will find a public which will derive instruction from it. It is sufficiently readable.

Psychology for Teachers. By C. L. Morgan. New York: Chas. Scribner's Sons, 1898. Pp. xi., 240. $1.00.

This is a clearly written little book, in which the outlines of a psychology are filled out by practical educational suggestions. As Superintendent Jameson's Preface shows, it has already found favour with American teachers.

Of the psychology, as psychology, little good can be said. It is regrettable that Prof. Morgan, like the late Prof. Romanes, is content to spend his energies upon popularising the older psychology, with its hierarchy of logical abstractions and its neglect of actual mental processes. Familiarity with the books recently published by Jodl and Stout would have done away, *e.g.*, with the old-time 'impressions of relation' and with many another relic of the English psychology of forty years ago.

Nirvana: A Story of Buddhist Philosophy. By P. Carus. Tokio, Chicago and London: Open Court Publishing Co. Pp. 41. Price $1.00.

To its other literary enterprises the Open Court Publishing Co. has added the publication of works on Eastern philosophy, printed on *crepe* paper and illustrated by Japanese artists. One of these, *Karma: a Story of Early*

Buddhism, has passed through several editions. The quaint combination of India, Japan and North America in it and in this volume was a happy thought on the part of the versatile editor of the *Monist*.

The *Nirvana* consists of a pictorial sketch of Buddhistic psychology. A curious note of modernity is struck in such sentences as these: "Your character, your thoughts, your volitions are your soul. You have not ideas, but you are ideas. . . . Consciousness originates as a product of conditions, and disappears when the conditions cease."

Port-Royal Education: Extracts, with an Introduction. By F. Cadet. Translated, with Index, by A. D. Jones. New York: Charles Scribner's Sons, 1898. Pp. iv., 260. $1.50.

M. Cadet's book consists of a historical and critical introduction of sixty-seven pages, and extracts from the principal Port-Royal writers—Saint Cyran, Arnauld, Lancelot, Nicole, De Saci, Guyot, Coustel, Fontaine, Jacqueline Pascal, etc. The translation is well done, and the work forms a valuable addition to English pedagogical literature. In a future edition the translator would do well to rewrite the historical part of the Introduction in somewhat greater detail.

A Mechanico-Physiological Theory of Organic Evolution. By C. von Naegeli. Trans. by V. A. Clark and F. A. Waugh. Chicago: Open Court Pub. Co., 1898. Pp. 53. Price 15 cents.

A careful translation of the summary of Naegeli's *Abstammungslehre* (1884), which will do good service in calling the attention of English-speaking biologists to the whole work. An appendix of 9 pp. is taken up with Translator's notes.

Les Lois Sociales; Esquisse d'une Sociologie. Par G. Tarde. Paris: Félix Alcan, 1898. Pp. 167.

Études de Psychologie Sociale. Par G. Tarde, Membre de l'Institut International de Sociologie. Paris: V. Giard et E. Brière, 1898. Pp. 327.

The little volume entitled *Les Lois Sociales* contains the substance of lectures given by M. Tarde at the Collège Libre des Sciences Sociales in 1897. It is a convenient summary of the sociological doctrines expounded in his chief works (*Les Lois de l'Imitation*, *L'Opposition Universelle* and *La Logique Sociale*), and seeks not merely "to bring together the *disjecta membra* into one body of ideas," but to show the principles which unite them. The larger volume (which forms one of the International Sociological Series edited by M. René Worms) has somewhat miscellaneous contents. Most of the essays in it have already appeared in various periodicals. Though not arranged in a systematic order, they all help to illustrate the central ideas of the author as a sociologist. The last of the papers, dealing with the classification of crimes and legal offences, is addressed specially to the criminal lawyer, and appeals only to the criminal lawyer of other countries than France, if he has a scientific interest in comparative law. The papers "On Crime and Social Health" (a criticism of M. Durkheim's view that "crime is necessary, that it is bound up with the fundamental conditions of all social life, and is thus useful"), "On the Criminality of Different Professions," and "On Juvenile Crime," have a wider interest; but they

are special studies in sociology rather than philosophical discussions. The article entitled "Souvenirs de transports judiciaires" is a charming little "causerie," reminiscences of the author's experiences as a "juge d'instruction". The title might be paraphrased *Scoticé* as "Recollections of a Procurator-fiscal's official journeys". M. Tarde complains pathetically that criminals have so often chosen such lovely spots for their crimes. Another essay deals, and seeks to deal scientifically, with "Graphology". M. Tarde suggests that we may practise the maxim "know thyself" by studying our own writing; and his "advice to those about to marry"—more necessary perhaps in France than in this country—is "Never ask the hand of a young person without having examined some specimens of her writing". There is also a brief, sympathetic notice of M. Henri Mazel's interesting but rather unscientific book, *La synergie sociale*, and a review of Prof. Gidding's *Principles of Sociology*. The other four essays are longer, and occupy nearly all the first half of the volume. They are entitled "La Sociologie" (an essay on the nature and methods of the science), "Les deux éléments de la Sociologie" (*i.e.*, the primary social *fact* and the primary social *unit*), "Le transformisme social" (an elaborate review of Prof. de Greef's work), and "L'idée de l'organisme sociale". These four essays go over much the same ground as *Les Lois Sociales*, and give perhaps a clearer, because less abstract, view of the author's theories.

Of the *Lois de l'Imitation* a very full and careful analysis was given by Mr. Thomas Whittaker in MIND for July, 1890 (O. S., vol. xv.), and a brief account of *La Logique Sociale* will be found in the number for January, 1895 (N. S., vol. iv). Any detailed exposition of the volumes before us is therefore unnecessary, and a few points only will be noticed. M. Tarde regards sociology as "collective psychology"; Comte conceived it as a social physics; Mr. Spencer has treated it as a social biology; but the worst notion (*whose* the reader is left to guess) is that which makes it a social ideology (*Études*, p. 92). For the famous metaphor of the social organism M. Tarde has little toleration. He calls it "a notion unanimously discredited" (*ib.*, p. 121). If so, what need to criticise it so fully? But the criticisms are very good. It is pointed out that every individual is the member of several societies at once (*ib.*, pp. 122, 187); that a society may change its fundamental *credo*, which, if it were an organism, would mean changing its species (*ib.*, p. 221). It is noted that terms such as "colony," "parasitism," "division of labour," "organisation," were applied to society before they were transferred to plants or animals (*ib.*, p. 128). Society is, in fact, less obscure and difficult to understand than life (*ib.*, pp. 11, 99). Such criticisms are just and valuable; but does not M. Tarde go too far in denying almost any value to the biological categories of organism and evolution as applied to society?

The primary social fact M. Tarde holds to be "imitation"—which is the psychological form of the universal principle of "repetition". Sociologists have erred by looking at the general and abstract aspects of social phenomena, and neglecting the particular and individual. "Socially everything that is general was at first individual" (*ib.*, p. 32). All institutions, customs, etc., have originated as individual "inventions," and have spread from individual to individual. True; but does not M. Tarde, in his horror of biological sociology, fall back upon physical and even mathematical metaphors? Ideas and customs are thought of as "radiating" from a centre; they may be met by opposite ideas, radiating from other centres, which thus "interfere" with them. Out of this combination of "repetition" and "opposition" comes the "adaptation"

we find in society. The triple formula has almost a Hegelian look; but M. Tarde has given it a somewhat mechanical interpretation. He confesses, in fact (*ib.*, p. 288), that he distrusts "trinitarian minds," like those of Hegel and Comte: he prefers dualist and dichotomist minds like that of Mr. Spencer. And in spite of his primary triad, and in spite of occasional limiting statements, M. Tarde shows himself devoted to dichotomy. His logic generally brings us to an "either—or," and his psychology is of an extremely dichotomous kind (*cf.*, p. 264). The social medium (*le milieu*) has been used too readily by many sociologists, but M. Tarde seems sometimes inclined to neglect it all together (*ib.*, p. 79). "The general mind is a function and not a factor of individual minds" (*Lois Soc.*, p. 45). But, if we leave out the social factor, is not the individual mind also an abstraction? M. Tarde himself in dealing with handwriting admits that every one's writing is a social, as well as an individual, product. To explain the inventions of a Watt or a Stephenson we must surely consider the social medium as well as the brain of the inventor. Of course the social medium consists of other individuals; but, whereas the individual mind is very difficult to know, we can know a good deal about the general mind; and M. Tarde himself allows that there can be no "science" of individuals as such (*Lois Soc.*, p. 8). At the basis of his sociology M. Tarde recognises that there lies a metaphysical monadology. But his metaphysics seems too merely "pluralist" or atomist to be called Leibnizian (*cf. Lois Soc.*, pp. 20, 163; *Études*, p. 76).

Again while pointing out the enormous significance of imitation, and thus escaping the error of those who, like Mr. Kidd (who is referred to as a "profound sociologist" in *Études*, p. 282), use the biological conception of "struggle for life" as a clue to all social evolution, M. Tarde seems to go to the extreme of denying its real value to the conception of natural selection. He disposes of Weismann (the name is inaccurately printed on pp. 118 and 277) too easily when he supposes his arguments against use-inheritance to be refuted by cases of "inherited" handwriting. Even if imitation be certainly excluded, a resemblance between the writing of parent and child may be due to both being of the same stock, and not to acquired characteristics.

M. Tarde's writing is always interesting and suggestive; and he has many happy illustrations, which show that he has a clear eye for the concrete—a great merit in psychologist or sociologist.

D. G. Ritchie.

L'Art et le réel. Essai de métaphysique fondée sur l'esthétique. Par Jean Pérès. Paris: F. Alcan, 1898. Pp. xii., 208.

It is impossible to feel that this essay throws much light upon the nature either of art or of reality. Its obscurities alike of thought and of expression are such as to defy the best-intentioned reader. The author's drift appears to be as follows. He sets out with the doctrine that reality is not co-extensive with existence. Reality, in fact, is existence only in the fullest sense of the term, as opposed to ordinary finite and contingent existence. Of reality in this sense, man possesses a special sentiment or intuition which is blunted by the ordinary routine of life, but sharpened by notable crises of suffering and of action. Now art is one way, and the best of all the ways, whereby we apprehend reality. Thus true art is not concerned with producing ephemeral objects of pleasure. In the things of beauty which art creates are embodied man's highest characteristics as a person, as a moral agent, and as animated by a devotion to what is universal and superior to the category of time. From an analysis of the

phenomena of art we may get an answer to all the chief problems of metaphysic.

It is misleading of the author to intimate that his metaphysic is "founded on æsthetic". It is assumed without any foundation at all. We do not get anything about art till after a prefatory section full of violently mysterious assumptions about reality. "Le réel est donc mystérieux dans sa nature," argues the writer, and mystery or fogginess is the dominant impression of the book. Mr. Pérès has undoubtedly a genuine interest in his subject, but he must study clearness of thought and expression. It is a mistake to write in sentences longer than those of the "judicious" Hooker (one in the introduction runs to 140 words), interspersed with aphorisms more cryptic than the fragments of Heracleitus.

Beiträge zur Akustik und Musikwissenschaft. Herausgegeben von Dr. Carl Stumpf. 1 Heft, C. Stumpf: Konsonanz und Dissonanz. Pp. vi., 108: Leipzig, Barth, 1898.

Prof. Stumpf tells us in the Preface to this brochure that its appearance is due to a decision which he has formed not to publish the two remaining volumes of the *Tonpsychologie* in this form, but in that of separate investigations. He has done, it would seem, with the psychological foundations, and will henceforth appeal to a more musical public.

The first number, written by himself, deals with the theory of Harmony and Discord. Although now and again it makes a pretty lengthy excursion into the physical side of acoustics, and into the more technical department of music, this first instalment is in the main psychological. It grows, indeed, as a kind of natural sequence out of the methodical inquiry into the analysis by the ear of tone masses which form the main problem of the second volume of the *Tonpsychologie*. Its theme may be described as the theory of fusion and analysis set forth in this volume applied to the explanation of the most fundamental contrast in modern, if not in all, music.

The essay begins with a critical examination of some of the more prominent traditional theories. Here the author deviates from the historical order, beginning with an examination of the latest of the commanding theories, *viz.*, that of Helmholtz, according to which dissonance arises from beats, and harmony means freedom from beats. The criticism of this hypothesis is particularly searching; the writer succeeds in showing that Helmholtz gives two definitions of harmony—the beat theory to fit the case of simultaneous tones or accords, and the theory of affinity, as determined by the coincidence of partial tones, to fit the case of the sequent tones of melody. He examines each of these. His argument is well prepared and forcible. It seems almost incredible that a great physicist—great alike in his mastery of the material and in his reasoning power—as Helmholtz undoubtedly was, could have gone so far wrong as he must have done if the facts are as Prof. Stumpf here describes them; he seeks to show that there is no discoverable relation between the amount of beat-effect of a pair of tones and its place among harmonious and dissonant combinations. As a piece of critical dialectic this sifting of the truth from the error in Helmholtz's explanation is quite up to the level of the writer's earlier performances. It is penetrating, unsparing in its thoroughness, finely discriminating, and immensely convincing.

After examining the 'unconscious arithmetic' theory of Leibniz, which places the value of harmony in a sub-conscious apprehension of the

numerical ratios of the tones, the writer opens up his own theory of fusion. He defines fusion of sense-elements as a tendency to unity which shows itself as resistance to analysis; that is to say, the recognition of a plurality of elements. The greater the degree of fusion the harder will it be to disengage the separate constituents. Hence the degree of certainty with which the ear can separate out the elements gives us the measure of the fusion; the one varying inversely as the other. Prof. Stumpf here seeks to show by help of experimental investigations of his own that the degree of fusion as thus ascertained coincides with the degree of harmonic affinity as recognised in music. The most striking example of this coincidence is that of the octave. Here there is the maximum number of errors in answering the question: Is this a single tone, or two tones? And it is well known that the octave has in music by far the closest degree of affinity. This is sufficiently shown in the familiar fact that we regard two tones forming the interval of an octave as in a sense the same tone.

The view that harmony is a running together of tones, discord a standing apart or aloof, is, as the writer reminds us, an old one, having the weight of authority on its side. He, however, can claim the credit of having given precision to the idea, and supported it by a methodical investigation of facts. It will at once be evident that his theory has this considerable advantage over Helmholtz's theory of beats, that it appears to assign a positive sensuous basis to the effect of harmony: for a tendency to fusion looks like a difference in the behaviour of the sensations. At the same time, as its advocate seems to recognise, it cannot be said to offer an explanation of the æsthetic value of consonance. Indeed, Prof. Stumpf seeks to keep out rigorously all consideration of the affective accompaniment. But he hardly justifies this rather violent course. The distinction between harmony and dissonance is essentially, in part, at least, a difference of feeling, even though it be true that the most obvious harmonies are not necessarily the most pleasing.

It may be safely said that the value of Prof. Stumpf's investigations will turn on the adequacy of his theory for the purpose of explaining the æsthetic impression of harmony. That the series of harmonic combinations answers in general to combinations difficult to analyse is an interesting generalisation; but what one wants to know is how this can be made to explain the fact that art seeks such combinations as agreeable, and avoids their opposites, save indeed for reasons lying outside themselves. If the writer had addressed himself to this æsthetic question he might have found it necessary to give even yet greater precision to his idea of fusion. He might have probed the question: What really happens in the consciousness of a person of ordinary musical sensibility when he listens, say, to the interval of a fifth? Does the 'sweetness' of such a combination—which sweetness seems to be the very soul of its harmony—depend on momentary extinctions of a sense of the duality of the tones? If not, how does the tendency to fusion work in differentiating this combination as 'sweet'? Unity in difference is commonly supposed to be the fundamental principle of all æsthetic combination; and it may turn out that musical harmony is an example of it somewhat analogous to certain chromatic effects, as when different adjacent colours are reduced each to a very small area, so that there is a 'partial blending'. My difficulty is to understand how such a tendency to fusion, or muffling, so to speak, of the distinctness of the elements, can be regarded as a *sensuous* effect at all. Does it not look more like the result of supervening intellectual processes, and more particularly of

an imaginative process which involves the feeling of mystery, and the impulse to chase what is fugitive and seems to be disappearing? But then the 'sweetness' of the harmony always appears to return on our hands as a sensuous phenomenon, *pur sang*. Here is the paradox which I trust Prof. Stumpf's fine analytical skill will yet help us to resolve.

J. S.

Kraepelin's Psychologische Arbeiten. Band ii., 2 u. 3 Hefte.

We have here, as indeed the title leads us to expect, a record of plenty of good work. The second *Heft* gives first an account of a method of measuring *Auffassungsfähigkeit* (facility of apprehension) for written characters and words, and then of some experiments on the psychological effects of trional, which happens to bear upon the same subject.

To measure *Auffassungsfähigkeit* a number of printed words of one or two syllables were pasted in spiral lines on drums, which were rotated so as to carry them at a uniform rate past an opening in a screen, whose width could be varied so as to alter the time of exposure; an arrangement which had the drawback that the word while in view was also in motion, and with long words it even happened that the whole word was not all in view at one time. An arrangement like that in the kinetoscope would apparently have been preferable. The words as read out were taken down by a shorthand writer and the conclusions deduced from the number and nature of the errors and omissions made. Six observers took part in the investigation, three of whom were normal individuals and three patients of Prof. Kraepelin's who suffered from more or less pronounced mental defects.

Perhaps the most interesting of the conclusions are those the author draws with respect to the individual differences among his six observers. One of them apprehended so rapidly that the various lengths of exposure of the words made no difference to him—he made practically no mistakes in any case; while the other observers exhibited varying degrees of facility, down to B. who with a short exposure did not read half the words correctly. And B. was a dipsomaniac. It is true that S. on the other hand, whose observations were not sensibly worse than those of two of the three normal observers, was also subject to attacks of alcoholism, but these Prof. Kraepelin attributes to an epileptic origin. But besides these Herr Cron and Prof. Kraepelin draw some further interesting inferences from a detailed examination of the figures, while at the same time they are careful to point out that it is absurd to expect these, or even very much more complicated psychometric experiments to enable us to form a complete estimate of a man's character or capabilities.

In the next article Herr Hænel gives an account of a series of experiments he made on himself to test the effects of the hypnotic drug trional; a drug which one does not often hear of in England but which is very similar to the more familiar sulphonal, only more rapid in its action. Herr Hænel took the drug on alternate days during each set of experiments, in such doses as would be ordinarily used to obtain sleep, and studied its effects by experiments on reaction, association, discrimination times, and by all those methods which Prof. Kraepelin has done so much to elaborate, including that described in the last article. The conclusion at which he arrived is that the drug works chiefly by reducing the *Auffassungsfähigkeit* for external impressions, and to a less extent by impeding the execution of co-ordinated movements. It does not seem to affect the inner mental processes such as association and imagination, with the curious effect that though the number of erroneous

reactions in taking discrimination times was actually diminished by taking the drug, the number of mistakes in reading was increased.

In Heft 3 we have an interesting paper on the periodic variations in working power, tested by Prof. Kraepelin's method of continuous addition; the period indicated being between two and two and a half seconds; which closely corresponds with that found by other observers as the period of variations of attention. Herr von Vors is inclined to seek for the explanation of this periodicity "*in centralen Vorgängen*". It is to be hoped, however, that this is not merely a counsel of despair, but that he himself will shortly have something more definite to tell us about it.

The remaining article concerns the alienist rather than the mere psychologist. It describes an apparatus for registering the pressure exerted and the time occupied in writing, and gives an account of some experiments made with it on healthy and on mentally diseased persons.

EDWARD T. DIXON.

Naturvölker und Kulturvölker. Ein Beitrag zur Socialpsychologie. Von A. VIERKANDT. London: Williams & Norgate, 1898. Pp. xi., 497. Price 11s.

This is a book of real importance, and we are sorry that we cannot give it the extended notice which it deserves. Its interest is essentially psychological rather than sociological or anthropological. Its aim is to analyse and illustrate the contrast and affinity between the savage and the civilised mind, and the nature of the psychological development which leads from the one to the other. This transition, as the author shows, is essentially a transition from relatively disconnected impulse to organised and systematised mental activity. In the phraseology which he has adopted from Wundt, the contrast between the civilised and the savage mind is a contrast between apperception and association. He is also fond of stating the antithesis in another way. Activity in the savage, according to him, takes the form of play, as contrasted with the organised activity of civilisation. This seems only partially accurate. It is quite true that play is impulsive in its character; it arises out of the circumstances of the moment, and does not form an integral part of the organised system of life. One game is complete in itself, and, as such, is disconnected both with other games and with practical business. So far the analogy holds. But, on the other hand, it is very far from true that impulsive activity, as such, is necessarily playful activity. It may, and most frequently does, arise out of the immediate pressure of practical needs, such as hunger.

There can be no doubt concerning the soundness of Mr. Vierkandt's leading idea. It remains to add that he has worked it out in an admirable manner. His knowledge of anthropological and other data is very extensive and accurate, and he applies his erudition with great felicity, always subordinating it to the main psychological interest. There is scarcely a page of the work which does not contain something of interest and value. Compared with it, the defects of Mr. Sutherland's voluminous book on the *Moral Instinct* become very glaring.

Der Begriff des absolut Wertvollen als Grundbegriff der Moralphilosophie. Von Dr. FELIX KRUEGER. Leipzig: B. G. Teubner, 1898. Pp. 95.

This is a well-written essay containing much that is interesting to the English reader. Dr. Krueger's two main arguments are likely to meet with wide acceptance. He argues, firstly, that moral theory must be

founded on experience, or, as he puts it, on psychology; and, secondly, that an appeal to experience will decide against hedonism. His first position leads him to criticise Kant, who was right in rejecting hedonism, but wrong in supposing that a psychological moral theory must necessarily be hedonistic. It was the latter mistake that led him to make the vain attempt of founding ethics on *a priori* basis.

In regard to his second argument Dr. Krueger lays it down that not only is it wrong to say "Pleasure is the supreme good"; it is wrong to ask what is the supreme good at all. We should not ask what is supremely good, but what is supremely valuable. Ethics, in fact, is the study of human values or appreciations, and its central problem is to determine what is absolutely and supremely valuable. In this connexion Dr. Krueger devotes a chapter to the psychology of value or appreciation, and criticises the doctrines of Meinong and von Ehrenfels, with whose hedonistic tendency he disagrees. He concludes that what is absolutely valuable is the faculty itself of appreciating or forming values, and that a man is morally good in proportion as he possesses and exercises this appreciative faculty. "He prayeth best who loveth best all things both great and small." Finally the author makes some pertinent illustrations of his own views and criticisms of other opinions. In particular he remarks that harmony among our various appreciations can never be the supreme good. Such an ideal would lead one to a mean-spirited and immoral quietism. In view of Mr. Shadworth Hodgson's exaltation of Harmony as the Moral Criterion these remarks of Dr. Krueger's are worth noting. The author concludes his essay with a review of Schuppe's moral theory which has many points of affinity to his own.

Rechte und Pflichten der Kritik. Philosophische Laien-Predigten für das Volk der Denker von C. E. Rasius. Leipzig; London: Williams & Norgate, 1898. Pp. vi., 171.

The "Volk der Denker" to whom this book is addressed is the German nation, and the title "Laien-Predigten" was chosen because the author did not know himself "whether he belonged to the ranks of the laity or of the philosophers by profession". This doubt it is impossible for the reader to share. The author is obviously very much of a layman in philosophy.

The three sections of the work deal with "intellectual or logical criticism," "æsthetic criticism," and "ethical criticism". The first two are somewhat commonplace. "Intellectual and scientific criticism has the *right* to track out mistakes wherever they occur, and to lay bare remorselessly everything erroneous and self-contradictory. But criticism has also the *duty* of setting forth its investigations impartially, *i.e.*, without any regard for the likes or dislikes of oneself or others," and so on. The author's æsthetic criticism is not much more electrifying. But the ethical section contains some pretty considerable paradoxes, most especially in its practical recommendations. When the author tells us that truth is man's sole fundamental virtue, the proposition, though disputable, appears in a measure familiar. But we have never heard the abolition of capital punishment advocated on the ground that it is no punishment at all, death being the common lot sooner or later. Nor do we think, like the author, that a philosopher should be no less esteemed because he also happens to be a pickpocket. In addition to some other odd doctrines, of which the foregoing are only samples, the reader will find much else in the book to reward his curiosity—notes on freedom of the press, antisemitism, the Bible and other topics, all treated with force and conviction, as becomes the lay preacher.

Psychologie als Erfahrungswissenschaft. Von HANS CORNELIUS. London: Williams & Norgate, 1897. Pp. xv., 445.

This is a valuable and important book, marked by lucidity and fineness of analysis. Critical notice, which owing to unavoidable circumstances has been delayed, will appear in the next number of MIND.

Saggio sulla Volontà. Per GIUSEPPE TARANTINO, libero docente di filosofia nella Università di Napoli. Napoli: F. di Gennaro e A. Morano. London: Williams & Norgate, 1897. Pp. 130.

This *Essay on the Will* is mainly concerned with the problem of Free Will, of which the solution is found in Determinism, reconciled with moral freedom by the intervention of the ego. The first part of the book, entitled "An Analytical Examination of the Will," is mainly a demonstration of the accordance of Aristotle's definition with modern theories. Signor Tarantino's view is, briefly, that every physical state tends to pass over into movement. Movement being a primitive fact, the function of will is essentially inhibitive. Will is the motor reaction of ideas and feelings. The motor force of an idea depends on the degree in which it has a sensible content or is connected with feeling, which is "the subjective consciousness of the objective state of the vital energy". Every affective state involves a cognitive element; but in the primitive organism this is overpowered by the effective element. The development of will proceeds side by side with the development of cognition.

The second part of the book deals with the metaphysical aspect of the question. Without the doctrine of determinism there could be no explanation of human action; but in accepting this fact we must recognise two factors in volition, motive and character, of which the latter is the more important. "An act of will may be considered as the result of the reaction of the individual character." Consciousness, like movement, is primordial; but in animals and young children the conflict of desires is decided on the principle of the parallelogram of forces, and consciousness is present, if at all, merely as a spectator. With intellectual development, will develops. Ideas are the motive force of action; and will depends, not on the number, but on the degree of organisation, of our ideas. To call the will *free* in the sense of *independent of motives* is absurd, since a causal nexus must underlie all volitional acts. *Freedom* consists in the development of character.

The practical aspects of the question have considerable interest for the author, and he makes some pertinent remarks on education and criminology.

Obbietto e limiti della filosofia del diritto. Di S. FRAGAPANE. Roma: E. Loescher, 1897. Pt. i., pp. 156.

This, the first instalment of Mr. Fragapane's work on the philosophy of law, has a sub-title of its own: *I criteri d'una limitazione positiva della filosofia del diritto.* The second part will deal with the relations of the philosophy of law to the theory of knowledge and to ethics; the third will treat of the phenomenology of law.

The main argument of the present part is a somewhat angry protest against recent methods of dealing with the subject in Italy. The writer appears to plead for a treatment which shall be less infected with metaphysics and more in sympathy with sociology. But it cannot be said that the work leaves a very definite impression on the reader's mind.

Much of the criticism, the sarcastic part in particular, is remarkably obscure. The author attacks "that antiquated mode of thought which goes on incessantly frying up the ever-youthful dignity of Vico in the oil of Hegel, which has learnt to fuse Plato and Savigny into one amphibious and elusive conception of law, or is continually trying to inscribe its own philosophic hotch-potch on the sacred aureole of Thomism". Nor are the generalisations much more lucid. In summing up his views on the last page, the author remarks: "There results from the phenomena of law such a specific efficacy operating on the conditions of society as may give scope in the philosophy of law for a special normative doctrine, distinct from that which sociology might deduce from the general appreciation of social modifiability". Criticism and dicta of this pattern occupy most of the work. An immense number of authors are quoted, and a vast range of topics dealt with, law perhaps less than most. But the author in his forthcoming volumes must keep more closely to facts and indulge less luxuriantly in high abstract generalisation if he wishes to interest the ordinary student of legal philosophy.

Received also:—

Mrs. B. Bosanquet, *The Standard of Life, and other Studies*, London, Macmillan & Co., New York, The Macmillan Company, 1898, pp. vi., 219. (3s. 6d.)

Leibniz, *The Monadology*, etc. (translated with introduction and notes by A. Latta), Oxford, Clarendon Press, 1898, pp. x., 437. (8s. 6d.)

J. Watson, *An Outline of Philosophy*, Second Edition, Glasgow, James Maclehose & Sons, 1898, pp. xxii., 489.

A. Alexander, *Theories of the Will in the History of Philosophy*, New York, Charles Scribner's Sons, 1898, pp. 357.

J. Seth, *The Scottish Contribution to Moral Philosophy*, Edinburgh and London, W. Blackwood & Sons, 1898, pp. 43. (6d.)

J. E. Creighton, *An Introductory Logic*, New York, The Macmillan Company, 1898, pp. xiv., 392. (5s.)

A. R. Dewar, *From Matter to Man*, London, Chapman & Hall, 1898, pp. viii., 289.

A. W. Benn, *The Philosophy of Greece*, London, Grant Richards, 1898, pp. x., 308. (6s.)

W. M. Bryant, *Life, Death and Immortality, with kindred essays*, New York, The Baker & Taylor Co., 1898, pp. vi., 442.

W. Wallace, *Lectures and Essays on Natural Theology and Ethics* (Edited by E. Caird), Oxford, Clarendon Press, 1898, pp., xl., 566. (12s. 6d.)

H. R. Marshall, *Instinct and Reason*, New York, The Macmillan Company, London, Macmillan & Co., 1898, pp. xiii., 574. (12s. 6d.)

E. Naville, *Le Libre Arbitre*, Deuxième Edition, revue et corrigée, Bale et Genève, Georg & Cie., Paris, Félix Alcan, 1898, pp. xiii., 311. (5 fr.)

J. Roux, *Psychologie de L'Instinct sexuel*, Paris, Librairie J. B. Baillière et Fils, 1899; London, Williams & Norgate, pp. 96. (1 fr. 50.)

D. Nys, *La Notion de Temps d'après les principes de Saint Thomas d'Aquin*, London, Williams & Norgate, 1898, pp. 232. (2 fr. 50.)

P.-F. Thomas, *L'Éducation des Sentiments*, Paris, Félix Alcan, 1899, pp. 279. (5 fr.)

M. l'Abbé C. Piat, *Destinée de l'homme*, Paris, Félix Alcan, 1898, pp. 244. (5 fr.)

C. N. Starcke, *La Famille dans les différentes Sociétés*, Paris, V. Giard & E. Brière, 1899, pp. 276. (Broché, 5 fr.; Relié, 7 fr.)

M. Couailhac, *La Liberté et la conservation de l'énergie*, Paris, V. Lecoffre, 1897; London, Williams & Norgate, pp. 324.

L. Ribert, *Essai d'une Philosophie Nouvelle suggérée par la Science*, Paris, Félix Alcan, 1898, pp. 562. (6 fr.)

E. Gyel, *L'Être Subconscient*, Paris, Félix Alcan, 1899, pp. 191. (4 fr.)

J. P. Durand (de Gros), *Aperçus de Taxinomie Générale*, 1899, pp. 265. (5 fr.)

Le Dr. Maurice de Fleury, *L'âme du criminel*, Paris, Félix Alcan, 1898, pp. xvi., 192. (2 fr. 50.)

F. Raymond et P. Janet, *Névroses et Idées fixes* (ii.), Paris, Félix Alcan, 1898, pp. x., 588. (14 fr.)

C. v. Ehrenfels, *System der Werttheorie*, Band i., *Allgemeine Werttheorie, Psychologie des Begehrens*, 1897, pp. 277; Band ii., *Grundzüge einer Ethik*, London, Williams & Norgate, 1898, pp. 271.

P. Mongré, *Das Chaos in kosmischer Auslese*, Leipzig, C. G. Naumann, 1898, pp. 213.

B. Erdmann und R. Dodge, *Psychologische Untersuchungen über das Lesen*, Halle, M. Niemeyer, 1898, London, Williams & Norgate, pp. viii., 360. (12 M.)

P. Natorp, *Socialpädagogik*, Stuttgart, Fr. Frommanns Verlag (E. Hauff), 1899, London, Williams & Norgate, pp. viii., 352. (6d.)

VII.—PHILOSOPHICAL PERIODICALS.

Philosophical Review. Vol. vii., No. 4. **J. Watson.** 'The Metaphysic of Aristotle.—iv.' [*Potential and actual reality.* To explain experience, we must grant the distinction of potential and actual reality. The relation between the two is found by way of a consideration of the 'possible'. The potential is persistent tendency towards the actual. In knowledge, in time, and in substance, the actual is prior to the potential. iv. *The divine reason.* While there is, within the sphere of the sensible or transitory, a continual process, the process is not self-explaining. A true cause must exist as self-dependent, and must express itself (or be actually originative). But it must not lose itself in expression; it must be eternally self-manifesting and self-identical. Aristotle finds it in the divine reason. "God . . . is eternal, unchangeable, self-dependent, self-originative, self-knowing and immaterial, the first and final cause of the whole process of the universe."] **C. M. Bakewell.** 'Pluralism and the Credentials of Monism.' [A rambling essay, whose thesis is that "we would (*sic*) like to be pluralists, if only we could at the same time satisfy the imperious claims of reason," and which concludes that "the world must be conceived as altogether coherent and interdependent in so far as free individuals do not freely act in it. Such individuals must, however, be conceived as capable of so acting, capable of interrupting sequences, of changing the history of the world—at least to some extent."] **A. H. Lloyd.** 'Epistemology and Physical Science: a Fatal Parallelism.' [Epistemology is separated from the physical sciences by the dualism of mind and matter. But it retains the same dualism within itself, in the opposition of subject and object, thinker and thought. And the sciences do the same thing: chemistry, in its conserved matter and atoms; physics, in its matter as medium and moving particles; mathematics, with infinite quantity and finite quantities. The cure is that all alike cease "to divorce form from content".] **W. G. Everett.** 'The Evaluation of Life.' [The worth of life is ultimately measured in terms of affective process. At the same time, "over against the peculiarly subjective and passive element of feeling, in which all experience is *evaluated* as good or evil, must be placed the objective and active phase of conscious life, by which all experiences are *constituted* good or evil". Critique of Alexander and Schiller.] Discussions. **J. E. Russell** and **J. H. Tufts.** 'Epistemology and Mental States.' Reviews of Books. Summaries of Articles. Notices of New Books. Notes. Vol. vii., No. 5. **E. B. Titchener.** 'The Postulates of a Structural Psychology.' [The three psychologies, structural, functional and genetic, and their distribution in modern literature. Postulates of an anatomical psychology are the processes sensation, idea, affection, and the attributes quality, intensity, duration, extension, clearness. Brentano, James, Stout, as psychologists of function.] **A. K. Rogers.** 'Epistemology and Experience.' [To the Hegelian position that "reality is experience and that all the categories of reality are distinctions within the process of experience" the author opposes the

view that "reality is definite, concrete experience ; not experience, *i.e.*, but experiences. . . . To say that all these experiences are brought together in the unity of experience is either to make experience perfectly abstract or else it is simply an act of philosophic faith." Reality being given, in type, in conscious activity, thought is real (or is a representation of reality) only as it is a reproduction of concrete activity. The process of judgment is analysed on the basis of this (Dewey's) theory, with especial reference to Bradley.] **E. A. Singer.** 'Sensation and the Datum of Science.' [Science is usually spoken of as constructing a world from the given : let us ask the counter-question, and try to construct the 'given' from the 'world'. Various claimants appear ; sensation is a typical one. Examination shows, however, that it does not and cannot stand for an immediate datum of experience. Moreover, logical analysis of the problem proves that the current method of search leads to meaningless results. The key to the situation lies in 'reconstruction'. "The starting-point for reconstruction we must indeed have ; but it is no simple datum for construction."] **W. G. Everett.** 'The Concept of the Good.' [The Good is at once happiness and perfection : happiness, as 'subjective, affective, evaluative,' perfection, in its 'objective, ideational, constitutive aspect'. That there is no conflict is shown (1) by the verdict of experience that the 'higher' pleasures are quantitatively greater than the 'lower' ; (2) by the two-sidedness of motivation of conduct ; and (3) by the appeal made to the two faces of the concept in deciding between certain alternatives of action. The only unity for the double-aspect good is the concrete moral personality, *i.e.*, the very material which is to be analysed by moral science. Hence the 'dualism' is a dualism of facts directly and organically interrelated.] Discussion. **G. H. Howison.** 'The Real Issue in "The Conception of God"'. [Against Royce. The author holds that "the world of truth [truth of fact and law as well as of value and conduct] springs . . . from the world of self-active intelligences ; presupposes and in its wholeness *is* a plurality of such strictly free minds, and cannot be contained in the unity of any single consciousness". Royce maintains the antithesis.] Reviews of Books. Summaries of Articles. Notices of New Books. Notes.

Psychological Review. Vol. v., No. 5. **M. W. Calkins.** 'Short Studies in Memory and in Association from the Wellesley College Psychological Laboratory.' [(1) Immediate and delayed recall of the concrete and the verbal. The author finds, as Kirkpatrick found, that the concrete is the better memory material, especially in delayed recall. 'Recalled' and 'recalled in order' give different values. (2) Tendency to mental combinations. A general characteristic, occurring with visual and auditory, verbal and concrete stimuli. Words combine better than pictures. (3) Associations with childhood experience. As against Galton's 39 per cent. childhood and 15 per cent. recent associations, students give 15 and 33 per cent., old and middle-aged persons 33 and 31 per cent.] **R. Macdougal.** 'Music Imagery : a Confession of Experience.' [The writer, not a good visualiser, records a series of vivid images which occurred during the hearing of a musical composition while he was in a state of fatigue and relief from tension. The derivation of some of the figures is traceable, as is their suggestion at the time by the music. The fact emphasised is that here the mood (organic sensations) mediated the visual imagery.] **F. Kennedy.** 'On the Experimental Investigation of Memory.' [A useful *résumé* and bibliography of the experimental work on memory, with indication of lacunæ.] Discussion and Reports. **H. Muensterberg.** 'Psychology and Education.' [Reply to Cattell.] **C. L. Franklin.** 'The New Cases of Total Colour Blindness.' [On Hess

and Hering, *Pfl. Arch.*, lxxi.] **G. V. Dearborn.** 'The Criteria of Mental Abnormality.' ["Neither anatomical nor physiological nor psychological nor yet personal, in a sense, is the deranged person's defect [though some or all of these abnormalities are usually present], but it is *sociological* and against the evolving purpose of the race."] **F. C. French.** 'The Place of Experimental Psychology in the Undergraduate Course.' [Maintains, against Wolfe, that there is none.] Psychological Literature. New Books. Notes.

American Journal of Psychology. Vol. ix., No. 4. **H. D. Sheldon.** 'The Institutional Activities of American Children.' [(1) Study of children's compositions on the topic of some society or club; organising tendencies displayed; boys' motives more primitive than girls'; small part played by secrecy. (2) Reminiscent papers; answers to questionnaire. Forms of play and organisation; invention, leadership, discipline; predatory associations. (3) Sketch of adult societies for children. (4) Bibliography of children's societies.] **J. O. Quantz.** 'Dendropsychoses.' [Study of the influence of trees on human life. Biological evidence. Psychical reverberations: witness of instinctive fears, of attitudes in sleep and methods of inducing sleep, of climbing instinct, of behaviour of idiots and criminals. Tree worship; the life tree; the world tree; the paradise tree; the tree in medicine; the tree in child life and in poetry. "Man's arboreal life may have evolved certain intellectual and emotional characteristics, suggestions of which we still find" in these sources.] **N. Triplett.** 'The Dynamogenic Factors in Pacemaking and Competition.' [Theories of the faster time of paced and competition bicycle races. Apparatus for laboratory study of motor competition. Results: of those stimulated, some made faster time, others were inhibited. A few subjects were little affected by the race. Fluctuations of energy; effect of age; sex differences; influences affecting time of succeeding trials. Effect of idea of movement on movement itself. General conclusion: "the bodily presence of another contestant," the "sight of the movements of pacemakers or other competitors," and the "idea of higher speed," however furnished, are all dynamogenic factors of consequence.] **M. H. Carter.** 'Darwin's Idea of Mental Development.' [For Darwin, mind has a survival value; by mind he meant, somewhat vaguely, intelligence, instinct and reflex action; he regarded mind and brain as two distinct, interacting, interdependent realities; he envisaged mental evolution as a progressive series of mutual (brain-mind and mind-brain) interdependencies. His position "may thus be summed up in three words, as Cartesianism *plus* evolution". Bibliographies.] **G. M. Whipple.** 'The Influence of Forced Respiration on Psychical and Physical Activity.' [Marcet's apnœic pause; feeling of dizziness and confusion, sometimes followed by exhilaration; greater strength of grip when breathing has returned to the normal. Rough tests—far too rough, in view of the appliances now available—show lengthened reaction, decreased memory span, loss of precision of movement, etc.; but all these results must be retested.] **E. B. Delabarre.** 'A Method of Recording Eye-movements.' [Plaster cast of cornea, modelled on wire ring, to which writing lever is attached. Details of use and construction.—Very useful.] **E. B. Huey.** 'Preliminary Experiments in the Physiology and Psychology of Reading.' [Short words more quickly read in horizontal sequence, long in vertical. First part of words more important for recognition than last. Movements of eye in reading; application of a device similar to that of Delabarre, and suggested by him and Ahrens.] **C. M. Hill.** 'On Choice.' [Experiments on 'natural, physical choice'. It is natural to take the

nearer object, when no other considerations influence choice.] Psychological Literature. Correspondence. [C. E. Garman on the teaching of philosophy.] Books received. Index.

Revue Philosophique. October, 1898. **G. Tarde.** 'Qu'est-ce que le Crime?' [The author criticises and rejects as inadequate various definitions of crime which have already been offered. In his view crime is the violation of a right (divine, royal or collective) by a rebel and hostile will, which excites alarm and indignation in proportion respectively to the probability of its being imitated, and to the extent of dissent from established moral opinion on the part of the criminal which it exhibits.] **F. Le Dantec.** 'Mimétisme et Imitation.' [Examines numerous cases of 'mimicry' and 'imitation' among animals, and concludes that many cases can be explained by the Lamarckian hypothesis better than by the Darwinian.] **J. Andrade.** 'Les Idées Directrices de la Mécanique.' [Mechanics rests on a metaphysical basis, *i.e.*, the majority of its fundamental concepts are denied *a priori* and not from experience. They are a means of interrogating experience, not an answer given by experience. Writer proceeds to prove his thesis by a detailed examination of the concepts in question.] Notes et discussions. Revue générale. Analyses et comptes rendus. November. **E. Murisier.** 'Le Sentiment Religieux dans l'Extase (I.).' [Religious ecstasy is an exaggeration of *individual* religious feeling as fanaticism is the exaggeration of *social* religious feeling. It has its roots in the desire for direction. Mysticism substitutes an '*idée directrice*' for all external direction. By this means a unification and simplification of the personality of the mystic is effected, yielding the quietude of ecstasy.] **F. Evellin et Z.** 'Philosophie et Mathématique. L'Infini Nouveau.' **E. Goblot.** 'Sur la Théorie Physiologique de l'Association.' [Writer defends the physiological theory of association, while denying that consciousness can be reduced to an epiphenomenon. Association must be carefully distinguished from memory, even in its simplest form of recognition. Essential to recognition is a 'judgment of pastness,' as a judgment of exteriority is essential to perception and of interiority to self-consciousness. Now all judgment is intellectual. The associative mechanism explains the givenness or non-givenness of a psychical state, but not the intellectual act of judging. "La machine cérébrale n'est pas une machine à penser mais une machine au service d'un esprit qui pense."] Revue générale. Analyses et comptes rendus. Revue des périodiques Étrangers. December. **F. Paulhan.** 'Le Développement de l'Invention.' [I. As evolution. Two main types. The first may be compared to solving a problem. An end is chosen and is led up to by a process akin to reasoning, *e.g.*, E. A. Poe's 'Raven'; in the second we have a natural power working freely and spontaneously, *e.g.*, production of Mozart's compositions. II. As transformation, in which the original germ-idea in the course of its evolution gathers round it other elements, one or other of which gradually comes into conflict with the original idea and finally supplants it. III. As deviation, a combination of I. and II. In the course of evolution discordant elements develop and persist alongside of those which are germane to the subject.] **Murisier.** 'Le Sentiment Religieux dans l'Extase (Fin).' [An analysis of the state of mind induced by religious exercises shows that asceticism is valuable as a means to the mono-ideism in which the state of ecstasy consists. In extreme cases, however, the idea disappears and consciousness seems reduced to a condition of pure feeling. Finally even feeling vanishes and a state of indifference supervenes. **Lévy.-Bruhl.** 'A. Comte et Stuart Mill d'après leur correspondance.' Revue générale. Analyses et comptes rendus. Revue des périodiques Étrangers.

Revue Néo-Scolastique. No. 18. **V. Ermoni** ('Le Thomisme et les Résultats de la psychologie expérimentale') maintains that while, on the one hand, ultra-spiritualism fails to account for cerebral phenomena, materialism, on the other, is in evident conflict with the phenomena of thought and consciousness; that, in consequence, for ultra-spiritualism there can be no physiology, and for materialism there can be no psychology. The theory of St. Thomas on the reciprocal relations of body and soul, standing midway between these two opposing systems, takes into full account both the elements of our nature, and forms a complete anthropology, uniting in one harmonious synthesis, which is justified by the most recent discoveries of experimental science, physiology and psychology. **E. Pasquier** ('Les hypothèses cosmogoniques,' *suite*), continuing his series of articles on the formation of the orderly universe, explains the hypothesis of Laplace, and discusses the chief objections advanced by Faye against this hypothesis, together with the reply of Wolf to Faye's objections. **M. de Wulf** ('Qu'est-ce que la philosophie scolastique), criticises the false and incomplete notions of scholastic philosophy now current. Some of these are merely verbal or even tautological; others are absolutely untrue. To say that scholastic philosophy was the philosophy of the Middle Ages will not satisfy M. de Wulf. Many systems of philosophy existed in the Middle Ages besides the scholastic, although it be undoubtedly true that the scholastic was the dominant system of that period. In future articles M. de Wulf will explain the true nature of scholastic philosophy, and attempt its suitable definition. **C. Besse** ('Leon Ollé-Laprune') commences an appreciation of the philosophical standpoint of Ollé-Laprune with special reference to its bearing on the problems of religion and life. He discusses at some length the attitude of Ollé-Laprune towards the system of Malebranche. **D. Nys** ('La Nature du composé chimique'), assuming that chemical compositions supply material for metaphysical as well as scientific investigations, sets forth the theories of St. Thomas on the subject, and maintains that there is nothing in modern science at variance with these theories. **D. Mercier** ('La psychologie de Descartes,' *suite et fin*) brings to a conclusion his interesting and able criticisms of Descartes' psychology.

Zeitschrift für Psychologie und Physiologie der Sinnesorgane. Bd. xviii., Heft 1, 2. **F. Schumann.** 'Zur Schaetzung leerer, von einfachen Schalleindruecken begrenzter Zeiten.' [Restatement of the author's theory of the 'time sense,' in terms of strain of expectation and sensible surprise. Reply to Meumann (nine arguments), Wundt and Kuelpe: the general objections to the writer's theory appear to stand, the detailed objections to have had for the most part something in them,—though Meumann's tone is inexcusable. New results: (1) evidence for the theory from Herbart and from various subjects; (2) effect of an unexpectedly strong signal; "with subjects whose estimation depends upon adjustment of attention, intensification of the third signal means shortening of the second interval, while with subjects who tend to rhythmical apprehension [as Meumann's did] it brings about a lengthening of this interval"; (3) the constant time error, as dependent on adjustment of attention, rhythmical apprehension, or motor automatism; (4) Meumann's statement that a long series of sounds appears to run more quickly than a succession of two or three is confirmed only when there is lapse of attention during the long series, when, *i.e.*, the subject cannot 'expect' its individual members; (5) his statement that a strongly bounded 'least' interval seems shorter than an equal but weakly bounded interval is not confirmed.] **W. Wirth.** 'Vorstellungs-

und Gefuehlscontrast.' [The 'law' of contrast in Hoeffding, Wundt, Fechner, etc., demands a detailed examination. (1) *Perceptual contrast.* Sense contrasts obtain only in the sphere of vision; their explanation is physiological. Perceptual contrast is due to the departure of a perception from the mean of experience; this produces a 'contrast feeling,' of surprise or disappointment, which is added to the (unaltered) perceptual contents. Apparent exceptions are accounted for by modification of memory-images. (2) *Affective contrast as co-ordinate with colour contrast.* Critique of Hoeffding. (3) *Affective and perceptual contrast.* Feeling, as subjective, cannot 'seem' to be weaker or stronger, as objective perceptions can; and, dependent as it is on the total mental state, cannot come into conflict with a pre-existent feeling-tendency. The introduction of secondary feelings, resulting from the effort after feeling, gives no assistance towards the explanation of affective contrast. But when perceptions contrast, the contrast feeling arises: and this is a special case of affective contrast at large. When our attention is on the objects, we speak of perceptual contrast; when the contrasting objects are so related as to arouse strong feelings of opposite quality, of affective: there are all stages.] **W. von Zehender.** 'Ueber die Entstehung des Raumbegriffes.' [The ideas of space, time and God are, in germ, *a priori* in human nature; but experience, outer and inner, is necessary to their realisation.] **K. Ebhardt.** 'Zwei Beitraege zur Psychologie des Rhythmus und des Tempo.' [(1) If taps are made, or tones played, in unaccented series, we find the duration of the intervals subject to a variable error. Accentuation (rhythm) increases this variable, and introduces a constant error: the interval following an accent is made longer than that preceding. Explanation (for bimembral and trimembral rhythms) in terms of motor adjustment, change of direction of attention, composition and analysis of groups, and (in the tonal series) affective value. (2) Compositions are played on a soundless keyboard most slowly; next most slowly, on the piano without accompaniment; most quickly on the piano with both hands. Explanation in terms of amount of mental work involved (reproduction), and of relative speed of arousal of expected feelings.] Literaturbericht. Bd. xviii., Heft 3. **O. Abraham** und **L. J. Bruehl.** 'Wahrnehmung kuerzester Toene und Geraeusche.' [A series of siren experiments, notable for their range (contra to middle of c^4 octave) and for the fact that the subject is possessed of a reliable 'absolute' tonal memory, gives the result that *two* vibrations suffice for a tone sensation and judgment of absolute pitch. From the g^4 to the a^5 the number of vibrations rises to ten. The absolutely least time (g^4) is $0{\cdot}63\sigma$. The 'clap' that results from the blowing of a single hole of the siren disc is a complex noise, conditioned by the primary wave, the distance of points of reflexion, and the periods of the after-vibrations.] **K. Deffner.** 'Die Aehnlichkeits-association.' [The two types of association: the original, by similarity; and the acquired, by 'experience' or contiguity. Critique of Hoeffding and Kuelpe. Similarity may obtain between conscious contents (two colours), or between the unconscious processes underlying these ('deep' tone and 'deep' colour). Exposition of this (Lipps') doctrine of association, with special reference to musical tones.—The most convincing part of the discussion is, perhaps, the criticism of Kuelpe's association by feeling. Wundt's *Bemerkungen* should have been taken account of.] Literaturbericht. Bd. xviii., Heft. 4. **H. Voeste.** 'Messende Versuche ueber die Qualitaetsaenderungen der Spektralfarben in Folge von Ermuedung der Netzhaut.' [Stimulation for ten sec. From red to $570\mu\mu$, the colour shifts towards violet; at $560\,\mu\mu$ there is no change; thence to $500\,\mu\mu$

the colour shifts towards red; from 490 to 460 $\mu\mu$ there is no change; beyond 460 $\mu\mu$ the colour again shifts redwards. The degree of qualitative change is not proportional to intensity of stimulus. Theory follows in a later paper.] **G. J. Schoute.** 'Abnorme Augenstellung bei excentrisch gelegener Pupille.' [Description of case; explanation and measurement of anomaly.] **M. Meyer.** 'Nachtrag zu meiner Abhandlung. "Ueber Tonverschmelzung und die Theorie der Consonanz."' **C. Stumpf.** 'Erwiderung.' [Continuation of controversy. Stumpf holds that clang analysis is rendered more or less difficult, according to conditions, by consonance; Meyer that unmusical persons are readier to say 'one tone' when the impression of consonance is present than when it is absent. No new facts are alleged.] Litteraturbericht. Bd. xviii., Heft 5 und 6. **C. Stumpf** und **M. Meyer.** 'Maassbestimmungen ueber die Reinheit consonanter Intervalle.' [Desiderata: experiments with successive tones, in ascending and descending order; with simultaneous tones; with simple tones and clangs. Previous Literature. Chapters i., ii. (S.), Experiments with the major and minor third. Chapter iii. (M.), Experiments with major third, fifth and octave. Chapter iv. (S. and M.), Uniformities in the results of these last experiments. Chapter v. (S.), Comparison of the new with older results. Contains a severe criticism of Schischmanow. Chapter vi. (S.), Remarks of the subjects during the experiments. Chapter vii. (S.), Explanations. (1) The judgment of purity is based upon a 'feeling for purity,' or rather a 'feeling for impurity'. With augmented intervals there is a feeling of strain, of sharpness; with diminished, a feeling of bluntness, dullness, flatness. The feeling is now primary, the judgment secondary; phylogenetically, a judgment of deviation from degree of fusion is primary. (2) Impurity can be cognised earlier than its direction; evidently, since the unpleasant feeling is common to both directions. (3) The major third is augmented, the minor diminished, in judgments of subjective purity. The reason is the æsthetic need of expression, of emphasising the characteristic. (4) Fifths and, still more, octaves, are similarly augmented; especially in ascending succession. The reason is that the energy of progression is thereby emphasised. From successive, this augmentation has passed over to simultaneous tones. (5) Succession is better than simultaneity for judgments of purity, because these judgments depend on feeling; simultaneity reduces distinctness (fusion), and so obstructs the judgment. (6) Clangs rich in overtones give uncertain judgments of purity. This is strange only to those who hold Helmholtz's theory of consonance. (7) The fifth has the advantage over other intervals in these judgments; the rest stand on the same level. The current belief to the contrary is rooted in speculation, not in fact.] **T. Lipps.** 'Raumaesthetik und geometrisch-optische Taeuschungen, I.' [Elaborate reply to Heyman's criticism.] Besprechung. [Martius on Jodl's Lehrbuch.] Litteraturbericht.

Philosophische Studien. Bd. xiv., Heft. 3. **H. Bruns.** 'Zur Collectiv-Masslehre.' [Presents and gives numerical tables for an improved method of investigating collective objects (Fechner).] **K. Marbe.** 'Die stroboskopischen Erscheinungen.' [Historical: the invention of the stroboscope; Fischer's investigation and its results (1886). Derivation of the laws of stroboscopy from Talbot's law. Restatement of the author's theory of this law, and critique of Witasek (Weber's law may be employed as explanatory principle) and of Fick and Schenck (eye-movement theory untenable).] **R. Mueller.** 'Ueber Raumwahrnehmung beim monocularen indirecten Sehen.' [Historical: Descartes to Wundt; Kirschmann's hypothesis of the function of dispersion circles (parallax of indirect vision). Experiments with falling balls (black and white, seen

against a grey background). Control experiments with exclusion of accommodation (use of atropin and eserine). In both sets, the monocularly perceived impressions were not spatially discriminated, but referred to a surface at a distance of some 190 cm. from the eye. Theory: moments in the monocular perception of depth: reference to von Recklinghausen's normal surface (formed by lines of intersection of identical planes of direction); lower of two vertical double images seems nearer and smaller, in obedience to the empirical constraint of the horopter; accommodation alone is sufficient for localisation; Boettcher's observation of the stability of the vertical after torsion; the relation of dispersion images to irradiation, size of pupil, closure of lids, regular astigmatism, 'experience,' 'psychical suppression'. Conclusion: the "dispersion circles are not directly perceived, and may yet be of prime importance for the act of perception". "The sole function of the images of indirect vision is to release sharply defined movement-impulses." "Monocular space perception exists; but the motives (exposed by these experiments) are originally those of the binocular act of vision."] **R. Schulze.** 'Ueber Klanganalyse.' [Experiments of 1891-3 (Wundt, *Phys. Psych.*, 4te., Aufl. i., 451). Every individual has a normal overtone-clang, which is difficult of analysis. A given compound clang is analysable in proportion as it varies from the normal clang. Corollaries are: the higher an interval in the tonal scale, and the wider apart the components of an interval, given identity of musical relationship, the easier is its analysis. Under right conditions, small intervals are less readily analysed than large; this is in accord with Helmholtz' theory. Hypothesis of analysis by resolution into a succession of tones, no more than one to two vibrations being necessary for the characterisation of pitch.]

Vierteljahrsschrift für Wissenschaftliche Philosophie. Jahrg. xxii., Heft 4. **R. v. Schubert Soldern.** 'Ueber das Unbewusste im Bewusstsein.' [*Unconscious* must always be taken to mean *relatively unconscious, viz.*, unconscious in relation to some higher mode of consciousness. Four kinds of unconsciousness are distinguished from this point of view.] **R. Eisler.** 'Ueber Ursprung und Wesen des Glaubens an die Existenz der Aussenwelt.' [External things are unified groups of qualities. Their externality consists in their independence of a percipient subject. They are "transcendent" only in so far as they comprehend qualities not immediately perceived, but ideally reinstated from previous experience. We regard external things as existing during the intervals of perception by an interpretation based on analogy to our own persistence as conscious beings.] Besprechung, etc.

Archiv für Systematische Philosophie. Band iv., Heft 4. **J. Bergmann.** 'Seele und Leib (i.).' [This first article deals with the general nature of soul on the one hand, and of material substances on the other.] **P. J. Helwig.** 'Die combinatorisch-æsthetische Function und die Formeln der symbolischen Logik.' *Jahresbericht* ueber die Erscheinungen auf dem Gebiete der systematischen Philosophie: **T. Lipps.** 'Dritter æsthetischer Litteraturbericht (i.).' **F. Tönnies.** 'Jahresbericht ueber Erscheinungen der Sociologie aus den Jahren 1895 und 1896.' **V. Brochard.** 'Compte-rendu des ouvrages philosophiques publiés en France pendant l'année 1896.' Zeitschriften, etc.

Philosophisches Jahrbuch. Bd. xi., Heft 2. **C. Gutberlet.** 'Die Krisis in der Psychologie.' [This second article, whilst recognising the merits of Fechner, Lotze and Wundt in experimental psychology, complains that Empiricism, now excluding and now using metaphysical reasoning, has destroyed the value of their researches. Fechner's law itself is a great 'sea-serpent'. The writer concludes by protesting

against the tendency to reduce Logic, Mathematics, Æsthetics and Ethics to Psychology, and to attempt pure experimental Psychology without metaphysic. Such a tendency is fatal to Philosophy.] **A. Seitz.** 'Zusammenhang des Leibniz'schen Monadensystems mit dem Determinismus.' [This paper, after showing the historical evolution of Leibniz' monad-system, compares his 'prestabilitated harmony' with the theory of predetermination of the human will, moved by the First Cause, and shows that the former contains the latter which amounts to Determinism. Leibniz was much influenced by the system of Jansenius, but confined himself to the philosophical side of the question without entering into its theological conclusions as concerns grace.] **E. Dentler.** 'Der Νοῦς nach Anaxagoras.' [Having pointed out in a preceding article that, according to Anaxagoras, the Νοῦς is intellect and power, the writer examines whether he ascribes to it absolute incorporeity and personality. Windelband, Gomperz, Kern and others deny it. Zeller, Freudenthal, Heinze and Arleth affirm it. From fragments of the philosopher's works, and quotations from Aristotle and Plato, it seems certain that the Νοῦς is absolutely incorporeal. As to its personality, infinite intelligence of all things implies self-consciousness; its immanence in all beings would indeed contradict personality, but it is likely that Anaxagoras did not see the contradiction.] **Cl. Baeumker.** 'Herr Fr. Gundisal Feldner und mein *Problem der Materie in der griechischen Philosophie*.' [This is a controversial article in which the writer protests against an attack upon his book. He is condemned for what he has not said in a book which his critic has not understood; he also complains of his assailant's want of courtesy.]

Rivista Italiana di Filosofia. March-April. **A. Chiappelli ed. L. Serin.** 'Una recente Scoperta fatta presso Pompei d'un Musaico rappresentante "La Scuola d'Atene".' [A translation of an article which appeared recently in the *Archiv für Geschichte der Philosophie*. To the translation an appendix is added by Sig. Chiappelli, dated June last, in which he adduces additional evidence in confirmation of the identification of the figures appearing in the mosaic.] **V. Berini.** 'La memoria e la Durata dei Sogni.' [A discussion of the views of Bonatelli, Goblot, Tissié, G. Dandolo and Maury upon the recollection of dreams. The author is inclined to think that dreams nearest in point of time, and in general coherency, to waking, are most easily recalled. The duration and measure of time in dreaming are also discussed.] **A. Codara.** 'Seneca Filosofo e S. Paolo. [*Conclusion.*] **L. F. Ardy.** 'Dante e La Moderna Filosofia Sociale.' [Dante's point of view with regard to Social Philosophy necessarily differed from the modern one. In his writings, he is deeply impressed by the prevalent social "decadence" of his own day, which he viewed in close connexion with its ethical root and, from the religious cast of his mind, attributed to the castigation of Providence. Therefore the remedies for the ills of the state consisted in the cultivation of religion, virtue, and wisdom (*to be continued*)]. **G. Passamanti.** 'Giovanni Battista Benedetti.' **G. Marchesini.** 'Oggeto e Sogetto della Sensazione.' Bollettino. Rivista Straniere, etc.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—SOME REMARKS ON MEMORY AND INFERENCE.

By F. H. Bradley.

Ambiguity of Memory—How do we think at all of the past?—By a construction—This explained and objections answered—No merely successive association — Difference between memory, fancy, and thought — Mere imagination, what — Inference, what — Defect of internal necessity in the former — Superstition about "abstract" refuted — Memory and inference agree and differ, how? — But memory involves inference—Its relation to inference in the lower sense — How is memory distinguished from mere imagination?—Memory's veracity—Memory and belief—The meanings of "matter of fact" in connexion with memory and mere imagination.

My object in this paper is to discuss certain questions about the nature of memory in connexion with inference on one side and mere imagination on the other. I have been led to write it partly from a desire to explain and justify the position which I took elsewhere. But the reader need not concern himself with the matter from this point of view, and I shall endeavour to treat the subject independently. On the other hand, even if I were able anywhere to deal satisfactorily with all the problems involved in the subject, the present limits are much too narrow. I can offer no more than a discussion imperfect at the best, and in which the reader must not expect to find anything really new.

We may notice first the well-known ambiguity of the word "memory". I have used, and shall use, the term in what seems its proper sense, the consciousness of past events as having been in fact experienced in my past. But memory is often employed otherwise. It may be taken to embrace all recognition and sense of familiarity, to cover persisting after-sensation and resurgent images, sporadic and undated.

It may be a general head which includes all retentiveness and reproduction, and may be enlarged to cover every habit, even where habit rightly or wrongly is applied to a case of mere physical mechanism. And hence nothing is easier than to defend memory as basal, if not as quite ultimate, and to refute the true view that it is a complex and late phenomenon. If, however, we keep in mind its various senses, less labour may be wasted.

Memory in its proper sense seems certainly complex, and involves a high degree and development of thinking, and memory for any sound psychology must be derivative and secondary. We may find it for the moment more convenient to postulate a faculty inexplicable and ultimate, by which I know my past events isolated or even in their synthesis with my present, an organ which gives us really the really existing past, or somehow immediately reports to us that which perhaps really does not exist—an oracle, which, although inexplicable or even perhaps because inexplicable, is to be accounted veracious. But the path which seems easy may be long in the end when it involves us in confusion, and a miracle, however cheap, in the end is dear when it entails the subversion of principle. And if against fact we are led to postulate the veracity of memory, that postulate, as I shall show, leads to ruinous scepticism.

Memory is an ideal construction of the past by which the present reality is qualified, or we know the past as an enlargement by ideal content of reality beyond the present. In this respect memory does not differ, it will be urged at once, from at least some inference and even from fancy. But without at present touching on these differences it will be better to ask in general how we are able at all to think of the past. There is, of course, the further question as to what in the end is the real nature of the past, but that question fortunately does not concern us here. We are to ask about the past simply so far as it is for us.

Now there are doctrines which I must take for granted without explanation or discussion, and all that I can here do is to try to state them so as to avoid unnecessary objections. If the reader finds that he dissents, I would ask him to consider this paper as written for others. We must first of all presuppose retentiveness and the growth of associations, the formation in other words of special dispositions to restore elements previously conjoined; and it is better to abstain here from the least attempt further to explain or formulate these doctrines, since that would involve us in controversy and in the discussion of some obstinate diffi-

culties. Here I would add merely that I have presupposed nothing except that which I take to be present in principle at the very lowest level of mind.

Now, so much being assumed, it is no great step to advance from it to serial connexions. Wherever A tends to call up B and B to bring in C, A being present will tend to produce the series A-B-C. The means and the condition of this mediate connexion is the identity of B. There is here a common link which is one and the same, or which at least somehow behaves as if it were so, and which also again on examination seems so. Without this identical link there is certainly no series at all, but how far its identity must be perfect is a further question to be considered later. And at this point there arises the difficult and most important problem about the unity of the whole series, a problem at which I shall be able to do no more than glance.

But when once we have such series joined by common links, it seems easy from this point to proceed to the future and past and to transcend the present. For given the disposition to an ideal series such as *c-d-e*, and given on the other side a present qualified as A(*b-c*), there is, through the identity of *c*, a transition from A to *e* through *b-c-d*. And with this transition memory, it might be said, is at once explained. Now in principle I think memory is so explained, and the explanation is correct, but it on the other hand is insufficient, and takes no account of serious differences. For in the first place memory has perforce to go backwards if it is to reach the past, while our series, it seems, run all the other way, and we can only think forwards. And in the second place memory is certainly not the *mere* extension of the present. It gives us rather something which is *not* the present, something which is known as different and incompatible. I will proceed briefly to discuss these two difficulties, beginning with the second.

To know the past or future as such is a hard and late achievement of the mind, for it implies an enormous degradation of the present. We do not properly represent the past or future until we have gained an order of things in which the present has become but one thing among others. These other things, not the present, are not presented, and, if by a miracle they were so while the present itself still remained untransformed, the result would be chaos. But past and future do not and cannot exist for us until reality appears as a series in which the present has sunk and has become but one member among others. Such an order is an array into the ranks of which the present is cashiered, it is an order

which is ideal and yet real, which is often not practical except remotely and indirectly, and which can conflict sharply with our presented perception and our presented need. The passage to this new world is the barrier, if there is one, between the animal and the human mind. The animal mind (I am here compelled to be dogmatic) has neither past nor future. It has no world but the reality felt present and given, a present qualified ideally and qualified incompatibly with itself, but never transcended and itself degraded to be but another qualification. It has ideas assuredly and from the first, and, if it had not ideas, it could most assuredly have no conation or desire. But the ideas of the animal mind are but adjectives of the given, ideas that enlarge the given and may indefinitely distract it, but never set themselves up beside it as other and equal realities. Hence the animal could never say, Yesterday I was sad but I shall be happy to-morrow. Its present is clouded and is brightened by the movement of its ideas, but remains always its present; its revenges are never retribution for the past, and even its plans, where it has plans, are no forecast of the future. It has, in brief, no world sundered from the world of its immediate practical interest, and to take an immediate practical interest in the past as past is surely not possible.

I regret to be unable to explain and defend this brief statement. It may serve, perhaps, to point out the interval which in my judgment separates memory from the lower level of mind. How in detail that interval is filled up and crossed I cannot here discuss. I agree that it is the use of language for social needs which is the principal agent. It is in this manner, I agree, that in fact we gain a world of ideas beyond, and in part incompatible with, our personal world, an ideal order which seems fixed and independent and which subordinates the present. On the other hand, I must demur to the conclusion that without society no such ideal world is in principle possible or could slowly be fixed by the mind. But, however it may have arisen, it is this ideal order which makes memory possible, and apart from this development to postulate memory is to invoke a senseless miracle.

I will pass next to the difficulty which arises from the direction of our thoughts. The past lies behind us while, it seems, we can only think forwards. Given the disposition to an ideal series *b-c-d*, then, if X*b* is presented, the identity of *b* can develop X ideally as X*b-c-d*. But if, on the other hand, X*d* is presented, how are we able to arrive at *b-c*? Our sensations, we may say, come wave on wave out of the future and disappear backwards into the past, while the

direction of our ideas is naturally opposite, and our associated series, usually if not always, run from the present to the future. We, to maintain our being, must face and must meet with our ideas the incoming waves, and it is this practical attitude against the course of mere events which gives the direction to all our series. I do not, indeed, admit that all our associations are practical, and that is a question I pass by. But the rule that usually they are directed forwards we must admit as true, whatever we may think as to possible exceptions. The current of our lives and thoughts in short runs opposite to the stream of mere event.

How then, given the disposition to an ideal series *a-b-c-d-e*, and given our actual presence at *d*, can we arrive at the past? The result is gained in this way. Our present has a character associated with *a*, the beginning of the series, and so, by means of *a*, we identify ourselves with and pass through the series *a-b-c-d-e*. But this so far is not enough. This series so far, it will be rightly said, can at best give us a future, and it will not supply us with a past which lies behind us. Our explanation, however, so far was incomplete, and our fuller reply is as follows: (*a*) In order to perceive the past we must not merely identify ourselves with the beginning of a series, but that beginning must, also and as well, be incompatible with our present. That beginning must, beside its identity with our present state, have also a further character which prevents identification. If our present is X*d*, then, since *x* is associated with *a*, we through *x* ideally reconstitute X*a*, but the two, X*d* and X*a*, are or may be incompatible. (*b*) And secondly, starting from this incompatible beginning X*a*, the series leads up to our actual present X*d*, and can be prolonged into the future. And this in principle is the explanation required for our recovery and perception of the past.

I will illustrate this first by a simple example which in part is defective. I have seen a stone thrown and now perceive it at my feet. It is the ideal identity of the stone which reinstates its existence at the point of departure, an existence incompatible with the present. And then that incompatible sameness produces itself in series ideally till it is one with the actual present perception. The illustration is, however, imperfect because it presupposes and makes use of a fixed spatial order, and, whatever may be true of our actual development, I cannot think that in principle such a spatial series is involved. Let us then take another illustration. Let us suppose that in the same locality I am first wet and cold and then dry and warm. Now my personal presence

in this place can by association restore in idea my wet and cold presence in the same place, the two being both the same and yet also incompatible—and then an intermediate series, say of lighting the fire, or of the sun's coming out, may unite by an ideal prolongation the first with the second. It is by a leap through ideal identity that we make ourselves one with what is incompatible with our present, and this difference being then connected by a series with our present, we have our past, which is thus given both as sundered and as connected. Such at least is the main principle involved though I cannot attempt to work it out in its complex detail. The most instructive illustration is probably furnished by the fact of double memory. That past from time to time is remembered or forgotten which has or has not the special quality which from time to time distinguishes the present. In this way at least the facts can in principle be explained, and in some cases the actual quality appears to have been discovered.[1]

The above may be made clearer, perhaps, by a reply to a possible objection. You cannot in every case, it may be said, show that what we remember is thus reproduced from the present, and memory therefore, it may be urged, is immediate and inexplicable—except of course, like everything else, by physiology. Now I should myself admit that the reason why I remember this thing and not that often cannot be found in my present psychical state. One might indeed urge that the reason is in all cases there and has been simply overlooked, but I am not myself prepared to endorse this contention. For our present purpose I would rather take no account of unconscious states of mind, and the contention seems not warranted by the facts which we are able actually to observe. Certainly to argue, on the other hand, that dispositions work without any kind of support from my present psychical state would be quite mistaken. The support is there always, though not always, I admit, the special support to this one disposition against another. And the cause of this special activity, I am quite ready to add, is in some cases to be taken as initiated merely cerebrally. But then I object that simply so far and with no more than this we have no memory at all. We have no memory until that which is reproduced is ideally

[1] By Janet. See his *Automatisme*. The principle was long ago laid down by Lotze. I would remark in this connexion that any one who fails to see that the present character of my feeling is a basis of reproduction, and who argues as if that basis must either be something before the mind, or else not psychical at all, does not in my opinion really understand the doctrine of Association.

separated from and is ideally connected with my present, and this ideal separation and connexion is and must be performed always in the way which I have described.[1] In short, memory as immediate is to my mind a sheer miracle, and I cannot accept a miracle even where I am assured that it is due merely to the brain.

The past, we have so far seen, is perceived by means of serial association, and, before I proceed, it is necessary to warn the reader here against a dangerous misconception. We have in the series *a-b-c* the association of *b* with *a* and of *c* with *b;* but we have not merely these separate associations, and, if we had no more than this, we should have no series at all. For every series which we know is known by us as one, and, if it had no real unity, the appearance of its oneness would be inexplicable. But this unity involves, so far as I can see, and consists in an ideal identity of character. There is some one content that is present through and is developed by the series, and is qualified by and itself essentially qualifies this series. But, if so, the members of the series will be joined not merely by association with one another, for each one must be associated also with one and the same quality. There will hence in fact be no merely successive association any more than there is any merely successive perception. The division of association into that which is simultaneous and that which is merely successive is in principle vicious, and any enquiry based on it is foredoomed to failure. The succession should be represented not as X*a-b* but rather as $\overset{X}{\underset{a-b}{\wedge}}$. And so we perceive how the whole series may thus be thought of as one, and how the idea of the whole is united with and so may reproduce any of the members, singly or at irregular intervals, and again in either direction. For beside the mere association of member with member we have as its complement in every series the con-

[1] If we wish to avoid mistake here, we must beware of confusion. We must distinguish the exciting cause of a reproduction from the ground of a memory. The ground of a particular memory is that which places it in connexion with a certain member of my past series. But it may be partially excited by that which cannot complete and so date it. A scent may, for instance, remind me of a certain flower, which then by association calls up its adjuncts involving a dated event in my life. The dating associations here are not those which excite, and the latter may be very frail and slight indeed. The reproduced when excited *then* dates itself by association with what is constructed from my present. If on the contrary I go backwards or forwards retracing my life, the exciting cause of a memory and its ground may be the same.

nexion of each member with the idea of the whole.[1] And with this brief warning on a matter of the greatest importance I must pass on to pursue further the subject of this article.

We are aware of and think of the past as past always by an ideal construction from the present, and the immediate presentation of the past as such would be a gratuitous miracle. But the past comes to us not by memory alone but also in mere fancy and again by pure inference, and it is clear that we are here concerned with serious differences. I may for instance remember that yesterday I sent a letter to the post, or I may imagine how I might have done this, though in fact I know that I did not, or again, while I cannot remember my act, I can perhaps prove that it happened. I will now briefly discuss the nature of these differences, beginning with mere fancy in its contrast with thought, and taking thought here in the sense of proof or inference.

How does mere imagination differ from inference? The question, difficult in itself, has been obscured by a fundamental error, a superstition about the abstract nature of thought proper. Deferring the consideration of this, I will state briefly the true ground of distinction. In inference there is, or at least there is supposed to be, a continuous necessity, and there is necessity because in a word there is identity. The self-same subject develops itself ideally in the process, and is qualified in the conclusion. And it qualifies itself throughout by itself, without the intrusion at any point of an extraneous connexion. We say that *b is c* and *c is d* and *d is e*, and each of these *is* not because of anything outside, but simply. Hence A*b* must be A*e* because in the end it is so. And whatever difficulties may be raised as to the possibility of using in our actual practice this type, this type at

[1] This consideration, I need hardly add, should never be lost sight of, as at times it has been, in investigating the subject of "successive," "regressive," and again "indirect" association. Another aspect of the same problem is the existence of general forms or schemata of series. It seems clear from abstract considerations as well as from particular facts that these must exist and be used in the retaining of concrete series. Our awareness of gaps and our transition over them, and our power of representing series in an abbreviated form point in this direction. But these schemata, being themselves presumably psychical and associative, tend to confirm the doctrine of our text. There are some results bearing on this point in the investigations of Schömann and Müller. The subject is both very obscure and very difficult, and it deserves more attention than it appears to have received, a remark which applies emphatically to the perception of a series in general.

least represents what we aim at and seek to find in inference. It may help us to perceive this if we suppose that the type is modified. Let us assume no longer that b is c simply, but admit that b is c only by the help of x. The premise must now be written $b(x)$ is c, and the old conclusion will not stand. We cannot any longer assert that Ab must be Ac. It only may be so, and, so far as it is so, it is so because of x. The Ab that is c is now not the Ab with which we started. We can no longer assert that the subject has been qualified throughout further without becoming something else. The subject of the conclusion is Ab together with a foreign condition x, and the conclusion is therefore conditioned, and, if you assert it of mere Ab, it is conditional or faulty.

It is a defect of this kind which vitiates the result of mere imagination. That result we should agree has no necessity. In my mind's wandering the subject Ab may have actually now become A-c, but we cannot add that the thing is so really and of itself, for Ab, also and just as actually, may become something incompatible and may appear as Ab-not-c. In mere imagination, because the thing may be otherwise, it is not *really* what it is. Necessity is not present, and necessity is absent because there is a breach of identity. The subject Ab becomes Ac, but you cannot add "of itself". Something extraneous has at some point entered in and has vitiated the process, and you have passed from b to c not because b *is* c, but only because the passage has happened. An element has intervened not belonging directly to the pure essence of b, but attached to b merely as b is now present in psychical fact; and it is this unknown addition, this x, which by a chance association has carried Ab to c. Such is the defect in identity which distinguishes mere imagination from inference,[1] and where this defect is remedied imagination becomes at once the strictest thinking.

It may be instructive to notice here the superstition to which I referred. The distinction of mere imagination from thought consists in the absence or presence of logical control, and that control lies, as we have seen, in the preservation of ideal identity. But where this principle has not been grasped most incredible doctrines have found favour. Thought is abstract, we may be assured, while imagination is concrete.[2]

[1] Compare my *Principles of Logic*, p. 410.

[2] See for example Prof. Sully, *Human Mind*, I., p. 384. He finds himself later in conflict with fact, and admits (p. 395, note) that the demarcation is "not to be taken absolutely". But the real question surely is whether the very principle of distinction is not false and contrary to fact,

Now I might ask if mere fancy may not be itself highly abstract, but, passing this by, I will go on to a plainer objection. To maintain all thought to be abstract is to be brought into collision with evident facts. For the lower animals surely can reason while they hardly are able to think abstractly, except in certain theories. And in our own lives the field covered by what is called intuitive understanding is certainly not all abstract or again on the other side devoid of judgment and inference. An obvious instance is the thinking and judging about spatial arrangements in an individual case. And the writer who will assert that such conclusions as He is the guilty man, or That is the right way, are either all abstract or are else not acts of thought, is to my mind past argument.[1] Inference of course is always abstract if that means that it implies analysis and selection, and involves always a principle of necessity which can, or could conceivably, be abstracted. But in any other sense judgment and inference need certainly not be abstract, but may be concrete to an indefinite extent. In short, to set up imagination and thought as two separate faculties, and to speak of one using the other or again being applied to its service, is from first to last erroneous and indefensible. Imagination, if of a certain kind, is not something employed by thought, but is itself thinking proper. If, on the other hand, by mere imagination we mean our mental flow so far as that is subjected to no control whatever, and is so not "used" at all, this certainly is not imagination in the higher sense of the word. Mere imagination, where regulated logically, itself is inference. And again, so far as serving other ends and subjected to other kinds of control, it becomes and itself is contrivance, fancy and crea-

and, if so, how we can be justified in using it. If Prof. Sully's view is that between thought and mere imagination there is in principle really no difference at all, that the distinction drawn between them is merely an affair of language and convenience, and depends, perhaps usually though certainly not always, on degree of concreteness, that is a doctrine which, however unsatisfactory, would be intelligible. But such a doctrine hardly entitles any one who holds it to speak of these processes as if they really were two, to lay down a ground and principle of distinction, and to go on to speak of "a connexion between the two" (p. 381). Such a position seems quite inconsistent and indefensible, though I fear it is not uncommon.

[1] I am tempted to say this again of any one who can maintain that thought must depend upon language. There arises here, of course, the further question, how far thinking, which is not throughout dependent on language, and which is in this sense intuitional, can be genuinely abstract. This is an interesting and important question, but we are not concerned with it here.

tion in various forms, intellectual, practical and æsthetic. It is the special nature of the end and the special nature of the control which makes the difference in principle, and in the case of inference we have seen in what that difference consists.[1]

From this our enquiry may return to the subject of memory. The mere imagination of the past, we have seen, is, like inference, an ideal construction from the present, and yet it fails to be inference. Memory is also an ideal construction from the present, and thus we are led to ask in what way memory differs from inference and from fancy; for that there is some difference seems plain. I may, to repeat our instance, infer that on last Monday I must have posted a letter, or I may remember the fact, or again I may merely imagine it, and these three attitudes are not the same. Now, as against fancy, it is clear that memory has necessity. It does not qualify its subject by a predicate the opposite of which can also be remembered, and which for this reason does not qualify the subject itself. Memory, in other words, is a judgment and an assertion about its subject. Hence it is often again said to involve belief, a point which I shall consider lower down. Thus memory being a judgment is so far the same as inference, and we must go on to ask if they are the same altogether.

If inference is understood in the sense in which we have taken it above, inference and memory certainly differ. For in memory there is a sequence and a continuity which is necessary, but on the other hand the necessity is not wholly intrinsic, or, if wholly intrinsic, is not so visibly. We do not, as in inference, go from A*b* to A*bc*, because *b* is *c*. The sequence in memory cannot be so stated. The premises are not A*b*, *bc*, but must be written as A*b*, B*c*. Now certainly *b* is contained in and is an element in B, but, with only so much, the sequence fails to be logical. For you cannot logically proceed from A*b*, B*c*, to A-*c*, unless you assume that B*c* is equivalent, say, to *b*-B-*c*, and not merely to *b*(*x*)-*c*. The essential question is as to how the difference, which turns

[1] I do not know whether Wundt (*Grundzüge*, II., p. 490) really means to say that *all* imagination involves a plan and an idea which it develops. Such a statement seems to be in collision with the obvious fact of mental wandering. The nature of the different kinds of control over mere wandering is, so far as I see, the only ground from which this whole question could be satisfactorily treated. I certainly could not myself attempt that treatment, and I do not myself know where to send the reader for satisfaction. Wundt's exposition seems not only confused in detail but based on no clear principle whatever. Such principles of division as "passive" and "active" are, for instance, much worse than merely useless.

b into B and which so brings in *c*, is related to *b*, whether, in short, and how far this difference is really accidental. Let us take once more the example which we used above. When I remember that on Tuesday last I sent my letter, the sending does not follow of itself from the mere idea of myself on last Tuesday. Thus I cannot prove that I sent the letter, and I can even imagine that in fact I did not send it. The connexion, therefore, between the day and the act is not visibly logical, and it may be urged further that the connexion is not logical at all. The predicate, it may be said, does not in memory truly and really belong to the subject of the process. The predicate, on the contrary, is added brutally from without, and is attached by something quite external, and in memory, therefore, as was the case with mere chance imagination, ideal continuity is broken.

Now a breach of visible continuity I have agreed must be admitted, and memory therefore will fall short of inference. There is no proper inference where you predicate the conclusion of the subject because the subject is conditioned by something not intrinsically developed from its own nature. But in memory on the other hand the constraint is not wholly external. For the necessity is taken to lie within the content of the ideal process which develops the subject. From the idea of myself on Tuesday I pass to the sending of my letter because of something which belongs to the nature of things which is taken as present at that date. The compulsion in other words is assumed to come, not from mere matter of fact, but from the special character of a certain concrete fact.[1] We wrote the premises of inference as A*b*, *bc*, and of mere imagination as A*b*, B*c*, where B was equivalent to $b(x)$, and where about the x we could say nothing whatever. But in memory that addition to and condition of *b*, which constitutes B, is taken not to be a mere x. The bond of union on the contrary is supposed to fall within the area of a specified content. The result is therefore logical so far and not merely psychical. It is logical in so far as the x has been partly determined, and so far as the condition of the result has thus been brought within the process, and no longer, as in mere imagination, falls outside in the unknown. On the other hand, because the x cannot further be specified, the result, though taken as necessary, still falls short of a logical conclusion. For the condition

[1] I shall add at the end of this article some further remarks on the logical difference between memory and imagination, and on the ambiguity of the term "matter of fact". Mere imagination gives "matter of fact," in one sense, more than memory does.

which carries A*b* to *c* may qualify A*b* beyond its own nature, and the conclusion therefore may not be true if you predicate it of A*b*. And so far as in the proper sense we remember, this ignorance and this inability is still implied.[1] In memory the predicate *somehow* belongs to the subject by the necessity of the content. The necessity is therefore intrinsic so far, since it falls within the process. On the other hand, because it is not known to belong intrinsically to the subject itself, we have no inference proper.

But though memory *is* not inference, in all memory an inference is involved. To connect my letter with the idea of last Tuesday I must first of all possess myself of that idea. But this possession involves, as we saw, a process from the present to something different, a process made through and resting on a point of ideal identity; and a passage of this sort seems certainly to be an inference. From the present A*c* I go to the past C because of the *c* within C, and to go otherwise is not possible. You may object that the initial difference here between *c* and C is really external to *c*, just as again the further connexions given by memory were admitted not to be internal. This objection goes deep and would raise questions which I cannot discuss in this paper, but for our present purpose it may be dismissed. It would, if admitted, show that we have a defective inference here, as perhaps almost everywhere, and it would not show that we use no inference at all. And the premise which is and must be employed is this connexion of *c* with its difference, not taken as subject to the condition of an individual case but as unconditioned and simple. The connexion is of course not really simple in an absolute sense, but it is simple in the sense of being taken as unconditioned by the present fact as such. And if you do not use it so, you clearly cannot transcend the present at all. In other words this connexion is not itself an affair of memory or of "matter of fact," since it underlies these as their condition. The connexion is direct, and the process where it is used, even if it is used unjustifiably, I must therefore call an inference.[2]

[1] Hence to draw an inference from a recollection as such is not possible. For the mere recollection implies that we have not got the premise which we desire to employ. To draw an inference from one individual fact as such to another fact is as impossible in fact as it would be senseless in principle. So far as you remember, we may say, so far you are debarred from reasoning. But on this subject I am confident that better ideas are beginning to prevail both in psychology and in logic.

[2] We see here that inference both logically and in time precedes memory. I am convinced that, while in fact many or most of the lower animals certainly reason, perhaps none of them is able to remember in the proper sense of memory.

In the proper sense of inference then memory involves an inference but itself really is not one.[1] If, however, the term were used in a looser way, the answer might be different, and the whole sequence might perhaps be called an inference. It would be here as in a case which involves observation. I may see a man and recognise him as a certain person by a genuine inference, and I then may perceive him to act in a certain manner. I may, on this, attribute the perceived act to the inferred person, and this whole process might be termed an inference. And in the same way memory also might be called an inference, for the reason beside that it does not involve perception. I do not think, however, that we need here consider this looser use. Nor will I stop here to discuss a possible attempt to confound inference with memory on the ground that all inference in the end is irrational habit. For the secondary distinction between inference and memory proper would still remain, even if both were in the end mere results of memory in the sense of habit. I could not in this paper attempt to deal with such a fundamental question,[2] and must pass on to another branch of our enquiry.

[1] The above and what follows may, I hope, justify the doctrine I have stated elsewhere, that memory in its essence involves an inference and so is inferential. I have never said or meant that memory consists in mere inference, and that you could make the goodness of the inference a test of memory. The question as to how memory, involving an inference, differs from inference proper, was not discussed or raised by me at all. The statement in my *Logic*, p. 75, as to the want of a point of identity in mere imagination, is certainly, as it stands, obscure and perhaps misleading. Whether my mind was clear when I wrote it I cannot now tell. What I should have said is that wherever we take ourselves merely to imagine, there not only is no intrinsical necessity attaching the result to the starting-place, but we also recognise that the identity of the subject is lost and that there is a breach in continuity. In memory, on the other hand, though the result is not taken as the necessary ideal development of the subject itself, yet we ignore the doubt as to a solution of continuity. We connect the end of the process with and attribute it to the beginning, because the process comes to us from one end to the other without an apparent break or loss of the subject and without the suggestion of an alien intrusion, or again of a sufficient competing alternative. In imagination the connexion between subject and predicate is that of casual occupancy, but in memory we have possession which to such an extent is *de facto* that the question of title is not raised, or, if raised, it is assumed to be somehow satisfactorily settled. With regard to the distinction between inference and mere imagination that is given correctly in my *Logic*, p. 410.

[2] A sceptical objection of this kind, if based on a psychological ground, seems (*Appearance*, p. 137) inconsistent with itself. The proper way to urge the objection is to compare the actual inferences which we must use with that ideal of inference which alone we can take as satisfactory.

A memory, we have seen, is a state of mind which differs from a mere imagination of the past, and in passing from one to the other we are aware that we take a new attitude. But how in the end can we tell that in memory our attitude is justified, and that our remembrance really is any better than mere fancy? So far, indeed, as we can apply inference and can rationally construct the past order, we seem to stand on safe ground. But when we are left at last with an idea of the past which shows no visible inconsistency, but about which we are able to find no further evidence, what test can we apply? The answer must be that we do not possess any valid criterion. There are marks which give us a certain degree of probability, and there are characters which more or less strongly impel us to take the idea as real, but there is in the end no criterion which is not fallible. I will briefly mention the characters which usually distinguish what we call a memory from a mere imagination. The interest of the subject is in the main confined to psychology, we should find some difficulties there into which I shall not enter, and the order of my statement does not pretend to be systematic.

We may place first the characters of clearness and strength, and in the next place fulness of detail, a detail which is not visibly rational. Next may come the sense of familiarity, and after that fixity of connexion, and I will then go on to add a few remarks. (i.) I will not venture to ask here what clearness and strength are to mean, but, whatever they mean, a mere imagination may have as much or more of them than a memory, and so much as this seems plain. (ii.) The same may be said with regard to mere fulness of detail, for a simple imagination may be very full in comparison with a memory. The character of the detail is, however, a sign to be noticed. If the particulars are many and yet appear as an accidental conjunction, not depending upon any general idea but all seemingly irrelevant, that, so far as it goes, is a mark of genuine memory. But this mark of irrational detail is, however, no test. (iii.) The sense of familiarity is again deceptive. Its nature has been much discussed,[1] but I think we may represent it as follows. There is in memory an absence of strangeness. The detail comes without shock to a mind which does not expect it and yet is already adjusted to receive it. And this adjustment points to an associative disposition set up by past experience, but it

[1] The word "assimilation" tends to introduce us here, in the pages of Wundt and others, into a world of what I will venture to call the merest mythology.

points ambiguously. For your present accidental mood may favour and support strongly some idea about the past, and this idea may in consequence strike you as natural and true. And again a mere imagination, if you repeat it, becomes in this way familiar, and itself thus creates the inner association which then offers itself as a witness to independent fact. And there is, once more here, no sure way of distinction between the false and the true. (iv.) Fixity of connexion is again not a trustworthy test. Where an idea is connected with a certain date strongly and fixedly in such a way that the opposite is maintained with difficulty, and where in addition this connexion is constantly recurrent, we tend to take it as memory. And where, besides this, the detail appears as a mere conjunction of coinciding particulars, we feel ourselves confirmed. But mere imagination is unfortunately well known to present all these features, and it is impossible to find an infallible criterion or remedy. There are certain characters which usually are the result of that past fact to which the present idea refers. Foremost among these is that fixity and necessity of non-rational but integral detail which belongs to and points to an individual experience; and, when to this is added the sense of familiarity, then memory seldom fails to appear and is commonly justified. But the above characters can each, and all together, be present in a false imagination.

The veracity of memory is not absolute, and memory itself is subject to the control of a higher criterion. Our justification for regarding memory as in general accurate is briefly this, that by taking such a course we are best able to order and harmonise our world. There is in the end no other actual or possible criterion of fact and truth, and the search for a final fact and for an absolute datum is everywhere the pursuit of a mere *ignis fatuus*. You may look for it in outward perception, or you may seek it in inward experience and intuition, but in each case you are misled by one and the same error in a different dress. This is a subject too large to be dealt with here as a whole, but I will notice before proceeding a recent instructive attempt to prove that memory is not fallible.

The position taken by Prof. Ladd on this point seems far from clear.[1] I understand that for him it is a vital matter to show that memory is at least in part infallible, but for the rest his procedure seems obscure and even inconsistent

[1] *Philosophy of Mind*, p. 133, foll. I have at present no acquaintance with Prof. Ladd's other works.

with itself. He admits the extreme fallibility of memory in detail, but contends that at least it cannot be wrong in its assertion of my past existence. But how far, and in what sense, when bared of or transformed in detail, my past existence remains mine, is a matter not discussed, nor, apart from this, is there any evidence produced for the truth of the contention. If wherever else a witness can be tested he is shown to be fallible, you can hardly assume him to be infallible in or beyond a certain point, simply because in or beyond that point you have in fact always found him to be right. And with regard to memory of my past existence the case stands as follows. All the memories that we can examine belong to minds which have had some previous existence, and it is very probable that memory can exist only as the result of some foregoing psychical development, however short. And, if this is so, then memory will be for this extraneous reason, and will be so far, infallible. It will be infallible, we may say, accidentally and in fact, but not in principle. Its evidence will depend on and be restricted to that which is otherwise known. And such an infallibility is, I presume, for Prof. Ladd's purpose useless. And even so much as this can, perhaps, not be demonstrated. For that memory should supervene suddenly at a certain point of physiological development in such a way that its report of a past psychical self would be wholly mistaken, seems not clearly and in principle to be impossible. If so, even the limited infallibility of memory seems not proved, but in any case, even if proved, I have shown its dependent nature.[1]

From this obscure and unsafe position Prof. Ladd passes to a second, which, itself untenable, seems not even consistent with the first. All reasoning, he argues, goes from premises to a conclusion, and our knowledge of the conclusion depends upon our memory of the premises. Hence, if that is fallible, every possible act of reasoning is discredited. Far then from being able to show that memory is fallible, we have even to assume the opposite if we intend to have any conclusion whatever. And with this we have a sure and certain remedy, Prof. Ladd argues, against the disease of scepticism. But the ground of the argument seems to me incorrect, and the

[1] If a man mistakenly remembers events ten years before he was born, is it satisfactory to add: There you see at once that his memory is really infallible, for he had, as a fact, some actual past (as you saw) before he made that mistake about his past? And even this amount of *de facto* infallibility rests on the assumption I have noticed in the text. It is therefore so far precarious, as well as in any case derivative.

conclusion drawn quite mistaken. The argument should prove, it seems to me, that memory is not fallible at all. Hence, when a particular memory is shown by reasoning to be false, we are left, it would appear, in hopeless confusion. For we must either accept both contradictories at once, or, if we select, we select on no principle, and surely this must be admitted to amount to scepticism. What we are to do when memory is thus divided against itself, and how mere memory is to sit in judgment on itself, are matters not explained. In short, that argument for the supremacy of reason which holds good against scepticism, becomes, if you transfer it to memory, wholly and entirely sceptical.[1]

Prof. Ladd's conclusion then is really sceptical, but the foundation of his argument, to return to that, consists in a mistake. It is not the case that reasoning depends on memory, and such an idea implies a wrong view about inference. In the first place in inference there need be no premises drawn out and put before the mind, and a very large tract of our reasoning must in this sense be called intuitive. Prof. Ladd has seen this, but without more ado he drives the evidence bodily out of court. Everything of this kind is "a merely mechanical movement of the ideas," a conclusion which I venture to regard as quite monstrous and a sufficient disproof of its foundation. That foundation is, however, in itself untenable. To assume that in an inference, where I go from premises to a conclusion, I depend upon memory, is to maintain that in inference I am necessitated *en route* not to know what I am about, and arrived at the end must have forgotten, and so be forced to remember, the start-

[1] How is mere memory to be a ruler and judge of itself? I cannot see how this is to be possible. If, on the other hand, memory is to subject itself to the judgment of reason, I cannot see how anywhere it is to claim independent authority, and to be treated as infallible or as more than *de facto* not mistaken. These are points on which I seek enlightenment so far in vain. If, for instance, it is urged that, in order to make the world intelligible, I must postulate that memory is right, unless so far as I have some special reason to think it anywhere wrong, I entirely agree. Certainly, I reply, and without doubt, we must make this assumption. But if, on this, I am told that, if so, we have an independent and ultimate postulate, I am forced to demur. Most evidently not so, I answer, if the assumption is made in order to make the world intelligible. If you leave out that, then, I agree, the postulate becomes ultimate, but it becomes at the same time arbitrary and, so far as I see, quite indefensible. If we are to think at all, we must postulate that reason is in principle infallible, and is the ultimate judge of its own errors. But to postulate that memory is in principle infallible seems to me to be, on the one hand, wholly unnecessary and, for any legitimate purpose, quite useless; and, on the other hand, it appears to me to be in the end really quite devoid of meaning.

ing-point and the way—and this surely is erroneous. The normal type of inference is surely the unbroken development of an identical subject, which does not leave the mind by the way and which, therefore, cannot possibly be remembered. This is the normal type, and I will add that, so far as this fails to be present, the operation is really not an inference.[1] With this I must pass from the subject of memory's fallibility.

I will add some words on the question which has been raised about Belief. Memory, we saw, takes its ideas of the past as real, while in mere imagination there is no such claim. It is the addition of belief, then, we hear it said, which turns imagination into memory, and our main task is to find in what this addition consists, or at least to set it down as "a final inexplicability". But the whole question is in this way misunderstood and the issue radically perverted. To take for granted the existence of "mere ideas" as self-evident and as a matter of course, and to treat belief in these as something supervening, or even adventitious, which we have then got to explain, is fundamentally erroneous. It is to make an assumption quite false in its principle and in its consequences most misleading. The presence of and the possibility of these "mere ideas" is, on the contrary, the very thing which calls most for explanation. No such ideas, we may say with confidence, can possibly exist in an early mind. To entertain an idea in which you do not believe, a suspended idea held in separation from the presented reality, is a late and, when we reflect, is an enormous mental achievement. It implies a disruption of that immediate unity of theory and practice which is at first throughout prevalent and is also necessary.

[1] Even in an indirect argument where I divide A into A*b* and A*c*, and then by disproving A*c* prove A*b*, I do not in the operation depend upon memory. Certainly at the end of my disproof of A*c* I may have forgotten A*b*, but I then return to the beginning with the knowledge that A is not *c*, and now with that in my mind reach the conclusion A*b* from A. The knowledge that A is not *c* does not here depend on memory. It might so depend if, *e.g.*, I had merely found in my notes that I had one day proved A*c* to be false, and if I used that bare result. But so far that result obviously does not pretend to be itself made in my inference at all. And with direct reasoning it seems clear that, so far as the subject has lapsed from the mind by the way, there is properly no inference. The operation, to become an inference, must in some form be repeated without that lapse. The retention of an identical content before the mind, and the assumption that where I have seen no difference by the way there is no difference, can neither of them be called memory except by an abuse of language. The points raised by Prof. Ladd are certainly well worth raising and discussing, but his treatment of them seems not satisfactory.

At an early stage of mind, every suggestion which does not conflict with the felt present is appropriated by that present and is necessarily believed in, so far as we are able as yet to speak of belief. The suggestion, on the other hand, which is not believed in, cannot possibly be retained theoretically, but, apart from appetite or fear, is banished forthwith. It is not my business here to attempt to show how mere ideas become possible, and again how far, and in what sense, the simple entertainment of them still involves judgment and their reference to a modified Reality. It is sufficient to have noticed in passing a common mistake and to have pointed out its nature. The main question, we may say, is not about the *plus* of belief, but about the *minus* of mere thinking. The main question in other words is, How is it possible *not* to believe. Then, when that point is clear, we may approach with confidence a different and subsequent problem, What is the difference between primitive belief and the belief or judgment which comes after doubt, and which really does supervene upon our "mere ideas"? And when we have seen that mere ideas consist in the disruption of a unity, we shall not find it hard to perceive the nature of that which supervenes. It is the restoration of those ideas to the unity from which they were separated, and to which they are now once more joined in a higher sense. It is in this restoration that we must seek and find the real nature of that addition which we observe in belief. But the question of the separation is fundamental, and, if it is ignored, the whole enquiry is wrecked.[1]

I should like to append to this paper some remarks on a point to which I have adverted (p. 156), the question, that is, about what is to be called "Matter of fact". So large a

[1] In this matter Prof. Bain's doctrine of Primitive Credulity has been of great service to psychology. I must, however, in passing remark that I am forced largely to dissent from his view as to belief. I dissent further from the mere identification of judgment with belief, but I cannot enter here into the difference between them. I would further direct the reader's attention to the fact that I may disbelieve in that which I certainly remember. The memory is here a judgment necessary in and on its own ground, but that region has here been disconnected from the world which I call my real world. This attitude is, of course, my common attitude towards the "imaginary". The judgment will be here a kind of conditional judgment. The difference I have noted between either the theoretical or practical acceptance of an idea *after* it has been held as a mere idea and its acceptance *previously*, has great importance. There is a re-union of the element, which was held aloof, once more with the felt reality. And it is this re-union which gives that feeling of "consent" which has been found so inexplicable.

subject, it is obvious, cannot properly be discussed in passing, and what follows, though not new, is offered merely in the way of invitation to further enquiry.

"Matter of fact" seems a highly ambiguous phrase, and for our present purpose we may distinguish three different senses, or three aspects of one sense. (1) The word may stand for that which is merely felt or is simply experienced, something which therefore excludes, so far, anything like judgment, truth, or falsehood. In this meaning of the word, imagination, memory and observation all alike are above, or if you please are below, matter of fact, for their connexions are all more or less analytic and abstract. (2) On the other side, these connexions will be matter of fact in varying degrees in proportion as they are external and apparently devoid of any intrinsic reason. (3) And again, they may be matter of fact as belonging to and as dependent on a certain point in our "real" series. It is on these two later shades of meaning that I am about to make some very brief remarks.[1]

The "merely imaginary" marks the farthest extreme of matter of fact in the second of our senses. It is not an affair of mere sense, since it qualifies a subject by an ideal predicate; but its bond of connexion, on the other side, is bare matter of fact. This connexion or conjunction on the one hand is actually there, but on the other hand it seems entirely irrational, since there is no more reason for it than for its diametrical opposite. The connexion therefore *is*, but it is true and real only by virtue of unknown conditions, and therefore in an unknown form. You pass from subject to predicate not on any ground which appears as intrinsic, not because of anything which seems comprised in your content, but on the strength of what falls outside. This unknown bond is for you no more than the nature of the universe at large, and you may call it matter of fact in general. In this sense of matter of fact memory and observation possess less of it than does mere imagination.

But if we pass from the second to the third sense of our term, and understand matter of fact not as general but as special and individual, the case is altered, and observation and memory must now be admitted to stand above mere imagination. For in them the predicate is not attached to the subject by a merely unknown cause, but is taken as connected with it by the nature of what appears at a certain

[1] A man is, I presume, called for good or evil a "matter of fact" person, according as he confines himself to the actual events of what we call "our real world," in opposition either to the "imaginary" or again to wide general principles of truth and conduct.

point of our real series. Their truth therefore belongs to, and is conditioned by, what is known at least in part. The connexion on the one side remains outward and an unintelligible conjunction, so far as its bond, though localised, is not made explicit. The condition cannot be specified and so brought within the subject, and the judgment to this extent remains irrational and mere matter of fact. But on the other side, so far as the connexion falls within, and is conditioned by, a limited area of content, so far as it belongs, in other words, to a special matter of fact, it has so far already ceased to be a mere conjunction, and has become intrinsic and rational.[1]

It is impossible within these limits to attempt to show how the process once begun is carried farther. The growth of our knowledge consists, we may say, in the sustained endeavour to get rid of mere matter of fact, to make the bond of connexion explicit, and to bring the condition of the predicate within the content of the subject. A genuine and complete truth cannot be confined within one part of our real series, but, to be complete and genuine, must take in the rest. And observation, if repeated,[2] and in a higher degree artificial experiment, transcend the individual case and pass into general truth, truth not conditioned by the fact of any date. But whether in the end, and, if so, how far and in what sense, the externality of the predicate can wholly disappear, is a question which here cannot be discussed.

[1] A mere imagination, if you take it as an occurrence in my history, belongs to matter of fact in the above sense of limited and individual fact. But this is because you have taken it not logically but psychologically. If you confine yourself to its logical aspect and consider it with reference merely to what it asserts, it is of course so far not an event in my life and a thing which can be observed. It so far *is* not matter of fact, but *possesses* matter of fact in the sense of matter of fact in general.

[2] In this respect memory remains inferior. To speak broadly and apart from a certain qualification, we have in memory a mere result which cannot be developed, and we cannot, as in continued and repeated observation, enquire further into the conditions of the result. For in memory (in the main) we are not in direct contact with these special conditions.

II.—SOCIAL AUTOMATISM AND THE IMITATION THEORY.[1]

By B. Bosanquet.

1. In applying the psychological conception of Automatism to a human community, I have in mind such cases of secondary Automatism as dressing oneself, walking, reading and writing. It is an analogy drawn from habits of this type, that seems to throw light on a fundamental problem of political philosophy.

In the individual life-history, such habits as these, we are told, subserve the end of an economy of attention. The greater part of our life depends upon actions which we have "learnt" with pains and exclusive preoccupation; but which, when once learnt, we can carry on while giving the bulk of our attention to something more worthy of a mature consciousness. Growth and progress of the mind depend on this relation. If we had never done learning to read and write, we should never be able to spare the attention needed to master a science or to compose a treatise. What can be done by machinery, is progressively handed over to machinery, while attention busies itself with the organisation of fresh experience.

If the analogy is sound, which suggests itself between the individual and the community in this respect, the ideal of political nihilism is exploded. For our conception would indicate that social life is necessarily and increasingly constituted by adjustments which have become automatic, and are in a large measure withdrawn from public attention. The formation of such adjustments would then appear to be the condition of social progress. A definite habit of orderly action, which receives the *imprimatur* of the State, and is thus put beyond the range of discussion, effects an economy of attention. The public mind is no longer preoccupied with it; it becomes part of the rationalised substructure of conscious life, and subserves the social end, while, so far as it is concerned, setting free the social mind for new ideas.

[1] Read before the Aristotelian Society.

Now it might be urged that the character of automatism is even more natural and necessary in social activities than in those which we primarily regard as individual. For the condition of automatism is a considerable degree of routine. And while routine is useful to individual life, in so far as it takes a definite shape, with activities which repeat themselves, it is absolutely essential to co-operative existence. At every point, in the complicated work of a civilised society, we have to reckon infallibly upon the action of others without conscious arrangement or special agreement. Once people walking in the streets fought for the "crown of the causeway"; then they turned out of each other's way as chance might dictate; and then, as Dr. Johnson tells us, the habit grew up that the pedestrian kept to the right. This habit has not passed into law in England, but it easily might do so as foot-passengers over the bridge at Dresden find that it has done and as the rule of the road for vehicles has done. The same account may be given of all the daily conduct of a law-abiding citizen. It moves in certain routines, determined by habit and sanctioned by law; and it is this characteristic alone which enables the enormously complex life of a modern community to be carried on in such a way that, so far from absorbing, it progressively liberates the attention of its members from the maintenance of its necessary conditions.

It is noticeable that in these habits the work of the best minds may be embodied; so that while we economise our attention we are actually better guided than our own best attention could have guided us.

When we speak of the State using force or coercion upon individuals, by far the greater part of what we mean consists in the fact that each private mind is rooted in the common life by interlocking adjustments which have become automatic to all. By being thus rooted, its capacities and faculties are immeasurably extended; and this extension of the private mind, which is a consolidation of it with the social fabric, must inevitably in certain cases act upon it as force. We are necessarily under certain circumstances dragged along with the vast machine whose powers we use as our own. The intentional and deliberate coercion used by the State through law and punishment is only a recognition and regulation of this inevitable situation, on which as we have seen the possibility of progress depends.

And we are in agreement with the best theory of punishment if we regard it from a point of view in harmony with this analogy. It is not the furnishing of a new motive to

make us do or omit, by the weighing of pains against pleasures, what otherwise we should have violently objected to doing or omitting. It is not essentially directed against intentional rebellion, and would not be rendered superfluous if all men became well-meaning. It is much more analogous to the start of pain which recalls us to ourselves when an automatic activity has failed to be self-regulating. We stumble in walking and hurt our foot; we pull ourself together, give full attention for a moment, and see that we were off the path; we take care to get on to it again, and give more heed to our steps in the future. As long as an imperfect mind has to meet progressive requirements, and to maintain a complex activity in excess of its powers of attention, a system of such reminders will be essential to society.

It must be noted that in a society a great deal of individual consciousness may be devoted to activities which are in the social sense automatic. That is to say, when anything has been reduced to routine by the public will, and handed over to a special class to carry out, then, as a matter of principle, it is in most cases withdrawn from the active attention of the community as such and of the bulk of its members, although a certain class are continuously occupied with it. The functions of the police are a case in point. It is plain that a difference exists between functions to which on the whole the maximum attention of the community is due, and functions which demand no attention, so to speak, for their own sake, but only in as far as is necessary to maintain order and freedom.

2. With reference to the rank or quality of these automatic activities a suggestion may be made in connexion with the biological principle of "short cuts," bearing on the problem of character and circumstance.

It seems to be an accepted principle[1] that "animals may perform movements which seem to be voluntary, with a nervous apparatus which would be inadequate to their performance by the child or man". The apparatus which represents a higher stage of mind has so encroached upon the independence of that which represents a lower stage, that the latter, in man, can no longer carry out the work which in the dog, for example, it will be able to take upon itself. A man, we are informed, can never recover his sight after the lesion of a certain higher brain centre; in the dog a lower brain centre still retains the power of taking over

[1] See Baldwin, *Mental Development in the Child and the Race*, p. 20 ff.

the work of vision, and the dog, after the same operation, may recover his sight.[1]

It is not, perhaps, altogether fanciful to trace a transformation of this kind in the world of volition. It is often maintained that the simple and sensuous conditions which, as stimuli to actions, determine the life of primitive societies, and differentiate the hunter from the shepherd, and the shepherd from the tiller of the soil, continue to be the essential determinants of action—the true causal factors of the moral world—throughout the life of higher societies. But development follows a subtler course than this, and the unity of mind is more thorough than such a doctrine admits. The simplest life-maintaining activities of civilised man are conditioned by far-reaching ideas, and if the capacity for these ideas perishes, the simpler stimuli which might have sufficed in an earlier phase are unable to carry out the task of providing for existence. The maintenance of material conditions has been transferred to the higher moral powers—the co-operative qualities demanded by a complex society. But by this transference the simple impulses of love and hunger have become unable to govern the world, as once, perhaps, they did. An objection may be made to the precise nerve of the analogy, on the ground that it is one thing to say that a simple impulse is inadequate to a more complex problem, and another to say that the simple impulse has lost even the power which it previously possessed. But the two cases are not really separable. The transference has taken place because the work to be done came to be beyond the reach of the lower capacity; and the disabling reaction upon the lower capacity itself is a matter of degree, and is always in such cases more or less evident. It would be easy to show that the motor effectiveness of the simpler impulses has been greatly impaired by the transference of their function to completer forms of volition. The phenomena of stationary populations are a case in point.

3. I may now say something of the antithesis of Imitation and Invention, which, under the form of Habit and Accommodation is alleged to permeate man's social being.

It is clear that in analysing the mind or minds of men in society, with reference to their social character, we have to deal at once with phenomena of identity and with phenomena of difference. The minds which form the mind of a given community have certain features in common as unquestionably as they have certain features which are individual. And

[1] See Baldwin, *Mental Development in the Child and the Race*, p. 20 ff.

it is an elementary fact of psychology that ideas, habits and actions tend to propagate themselves by suggestion through a number of minds which have the opportunity of acting upon each other. We are not therefore surprised to be told that imitation—the tendency to reproduction of suggestion—is a notable fact in the working of social intelligence. There is an aspect in which one individual may be regarded as a similar repetition of another, and the propagation of fashions or impulses throughout a multitude may be regarded as the imitation of one by others, and the repetition by others of the suggestion presented by one.

Nevertheless, upon a scrutiny of the true operative nature of social unity, we find that repetition and similarity are but superficial characteristics of it. What hold society together, we find, are its correlative differences; the relation which expresses itself on a large scale in the division of labour, or in Aristotle's axiom "No State can be composed of similars". And we look to our social psychologists for a recognition of the element of adapted difference apart from which co-operation and co-existence are impossibilities. But here, it would almost seem, a technical difficulty bars the way.

Imitation, or the propagation of similarities among similars, holds the field as an account of the common features of a society. But no differentiation can be got out of the tendency to reproduce a copy *per se;* and we seem none the less brought to a deadlock that we are supplied with the word "invention," to indicate the desired well-spring of novelty and individuality. Somehow, we are given to understand, the individual invents, and then, as we can easily imagine, his invention is generalised by the universal tendency to "take suggestion as a cat laps milk".

But here we seem to have an awkward dualism. Imitation and similarity divide the province of mind unequally with invention and difference; and instead of operating throughout with the same indivisible nature, intelligence appears to have an inexplicable preference for creation in some cases and for propagation in others. And the results are unsatisfying. The theory of a social mind is reduced by M. Le Bon to the explanation of impulsive emotion in a mob—the mere propagation of similitudes, as if critical discussion and the collation of points of view were a thing unknown in the formation of the social will. Even for M. Durkheim the spheres of similitude and of difference are wholly disparate; and the force put upon facts in order to demonstrate that penal and industrial law (corresponding to similitude and difference respectively) occupy different regions of the

social territory is enough to show that some fundamental assumption is leading us astray.

If we turn to Prof. Baldwin's analysis, we find, as we might expect, a resolute repudiation of dualism. "We[1] cannot divide the child into two parts, two realities coming up to the facts of life with different capabilities, one fitted only to imitate, and the other fitted to invent. Of course it is the same child whatever he does; and if he be gifted with the power of invention at all, this power should show itself in all that he does—even in his imitations." He recognises that frequently in discussion "the two types of function are as far removed from each other as the letters *vs* put between them would suggest".

But we have seen protests of this kind before, and we know that they decide nothing. For, only too often, they herald no comprehensive principle of unity, but a resolution of one thing into terms of another, the other being a mere fragment of the whole in which both should be complementary aspects. Have we not, I ask with diffidence in presence of Prof. Baldwin's suggestive and laborious researches—have we not, in principle, got a case of this kind here? I have heard it said, perhaps too curtly, that Prof. Baldwin explains invention as the failure to imitate. He does not use the phrase; but does not the theory and description of the child's invention bear it out?[2] If the criticism is justified, his theory will remind us of the famous definition of mythology as a disease of language—the work of poetic imagination being regarded as a degeneration of the meanings of words. In some degree, indeed, as I understand him, "the valuable variations of thoughts are clearly more or less determined in their direction by reason of the particular system in which they occur".[3] But yet, it would seem, in the main they have to be picked out by selection,[4] and therefore are conceived as after all mere variations, generated in an attempted imitation, and presented for a choice of survivors to be made from them, not thought-products with an inherent rule and direction which govern the adapted difference with which they come into being. In as far as the pregnant passages just alluded to can be shown to contain the essentials of the view to which I am about to refer, I shall admit my criticism to have been unjustified.

Subject to this reservation, it appears to me that the whole tradition of the sociological psychology in question is vitiated by a fallacy which has its roots in the atomic doctrine of

[1] *Social and Ethical Interpretations in Mental Development*, p. 90.
[2] *Ib.*, pp. 105, 107. [3] *Ib. id.*, 96. [4] *Ib.*, 120.

Association. The importance attached to repetition of similar units, as an analysis of society, and as an analysis of habit, betrays this origin. If the unity of the social mind is primarily a repetition or multiplication of resemblances, and if the *modus operandi* of mind as such is primarily the reinstatement of a perception or idea similar to a copy which has been previously presented to the mind from without, we see the ground of the difficulty which has been felt in locating the origin of difference,[1] which is introduced under the names of accommodation or invention as against the typical processes of habit and imitation. As I read the story, Prof. Baldwin, having started like others with this impossible point of view, is working with immense ingenuity to remould it. In doing so, he strains the idea of imitation, in two degrees, beyond its normal meaning. Its normal meaning I take to be the reproduction by a sensitive or conscious subject of some trait presented to it from without, because of its being presented. The typical meaning which Prof. Baldwin assigns to it is however already an extension of this, including any reaction by which in consequence of a certain stimulus an organism secures to itself more of the same stimulus, as *e.g.*, when an organism approaches a source of light or warmth. It is plain that here we are beyond the limits of the repetition of a trait or movement presented as a copy; and we are taken one more remove beyond this normal meaning of imitation, when it is suggested that we are essentially imitating in every act of will. "What are we really bringing about in willing anything? Are we not hoping that through us a kind of experience, object, thing, in the world, may be brought about after the pattern of our idea or purpose?"[2] Here the origin of our operative idea is wholly lost sight of, and the imitation lies in the passing of the idea into fact.

In all this, then, we have got far beyond the reproduction of a given copy in our operative ideas; and in being extended to cover volition—the passing of idea into fact—imitation has lost its differentia, and ceases to offer any account of the relation of action or ideas to previous actions or ideas of ourselves or of others. For the origin of difference, there-

[1] This suggestion is confirmed by the passage quoted from Prof. Royce; *Social and Ethical Interpretations*, p. 233, note. The tendency to find a special and separate explanation for phenomena of difference really seems to indicate something fundamentally imperfect in the writer's conception of unity and identity. I repeat a hackneyed illustration. The type of co-operative unity is not to be found in such a relation as that between two similar screws, but only in that between a screw and its nut.

[2] *Mental Development*, etc., p. 382.

fore, we must look not to this extended account of imitation, but to the passage in which imitation and invention are explained and reconciled. And there, as we said above, it is unquestionable that a strong effort is being made to weld the two together, but it seems no less unquestionable that the welding is artificial, and must be so, so long as we start from the point of view of similarity and imitation, which as such have no essential aspect of difference. The process of imitation is to reproduce a copy. In this reproduction we are told a variation may arise from accessory circumstances, which may be selected as valuable, and that is an invention. Can there be a doubt that we are here working with the machinery of Association by Similarity, and the old notion of a rack full of photograph slides stored in the mind, each of which is in the normal case reproduced without modification? Additional stimuli, it appears to be intended, may produce additional reactions, which form variations which have to be reconciled with the imitation-reaction, as parts of a system; but this is quite different from saying that the reaction to stimulus is *ipso facto* proportional to the place of the stimulus in a system. I can find in the whole theory absolutely no suggestion, unless there was some hint of it in the brief passage referred to above, that the mind can appropriate a law or principle the scheme of a whole, and naturally and necessarily differentiate its reactions in accordance with the bearing of such a principle on the new situation presented.

And yet to the student of social philosophy such a doctrine is an absolutely fundamental necessity. Nothing of serious importance happens by genuine imitation. There is no grain of truth in the restriction of invention to the individual, as opposed to generalisation which takes place by a plurality of individuals copying the one. All the business of society goes on by differentiated reactions. We never do simply what another person does. We do something different, which has a definite reference to it. I do not build my house. I give instructions and I pay for it; and of all the persons concerned, no one simply reproduces the action of another; but all do different things as determined by the scheme or law of action which is the universal working in their minds. The house is an invention, and a joint invention, a universal in which many minds have met. Pure imitation is an extreme subcase of this principle, a sub-case in which differentiation is at a minimum. But strictly speaking, differentiation is always there. Even if I buy a straw hat because my neighbour has one, I buy one that fits me, and not one that fits him. Every man in society is what he is through a law or scheme which assigns him an individual position, differing

from all others, and identified with them precisely through these differences, by which alone he can co-operate with them. Similarities are superficial consequences of the relations which identity in difference prescribes.

The error, then, if I am right, springs from working with Similarity instead of Identity. Directly we introduce Identity, Difference falls into its place as an inherent aspect of the principle, and we understand that no reconciliation is needed, but the universal is unity manifested in difference from the beginning and throughout.

In the laws of habit, thought and action, Identity exhibits itself in the shape of Relative Suggestion ; the point of which is that the mind is reproductive not *of* a similarity, but *according to* a universal, the more or less systematic scheme of a whole. I need not enlarge on the conception in question, which is familiar to readers of Mr. Stout's *Analytic Psychology*. I will only insist on two points ; first, that it follows immediately from the substitution of Identity for Similarity in the theory of Association ; and, secondly, that it at once satisfies the absolute demand of social experience, for a doctrine that will show why we never do simply what others do, but always something different from what they do and definitely related to it. The whole idea of the social mind has, in my view, been narrowed and distorted by the failure to grasp the importance of this principle, and it has not been understood that all social co-operation necessarily involves a unity of intelligence and habit which is in its nature logical and inventive ; the invention not being confined within individual minds, but being simply an aspect of the differentiated reactions, by which a co-operative body taken as a whole endeavours to be equal to the situation at a given moment. Every action, without any exception, is in principle a difference within an identity. The use of language is a familiar example. Every application of a word has an element of originality, and when the slightest difficulty of expression occurs the aspect of invention becomes emphatic, and is attended with noticeable pleasure. I have taken this opportunity of explaining my position towards the Imitation theory, partly because in a forthcoming work, which afforded me no space for psychological discussion, I have been obliged to refer very briefly to the views of Prof. Baldwin and others.[1]

[1] I regret that Prof. Baldwin's Presidential Address on " Selective Thinking," delivered in December, 1897, only came into my hands at the moment when the present paper was being sent to press. So far as I can judge, it confirms my view that Prof. Baldwin occupies a position intermediate between that of Associationism and that of Relative Suggestion, with a tendency towards the latter.

III.—THE NATURE OF JUDGMENT.[1]

By G. E. Moore.

"Truth and falsehood," says Mr. Bradley (*Logic*, p. 2), "depend on the relation of our ideas to reality." And he immediately goes on to explain that, in this statement, "ideas" must not be understood to mean mere "states of my mind". The ideas, he says, on the relation of which to reality truth depends, are "*mere* ideas, signs of an existence other than themselves," and this aspect of them must not be confused either with their existence in my mind or with their particular character as so existent, which may be called their content. "For logic, at least," he says, "all ideas are signs" (p. 5); and "A sign is any fact that has a meaning," while "meaning consists of a part of the content (original or acquired) cut off, fixed by the mind, and considered apart from the existence of the sign" (p. 4).

But Mr. Bradley himself does not remain true to this conception of the logical idea as the idea *of* something. As such, indeed, it *is* only the psychological idea, related, indeed, to that which it signifies, but only related to it. Hence he finds it necessary, later, to use "idea," not of the symbol, but of the symbolised. Ideas, as *meanings*, not as "facts, which have a meaning," "are," he says (p. 8), "the ideas we spoke of, when we said 'Without ideas no judgment'". And he proceeds to show that "in predication we do not *use* the mental fact, but only the meaning"; although, where he did say "Without ideas no judgment," his words were "we cannot judge until we use ideas *as* ideas. We must have become aware that they are not realities, that they are *mere* ideas, signs of an existence other than themselves." It would seem plain, then, that there his doctrine was that we do, in predication, use the mental fact, though only as a sign; whereas here his doctrine is that we do not use the mental fact, even as a sign, but only that which it signifies. This important transition he slurs over with the phrase: "But it is better to say the idea *is* the meaning". The question is surely not of which is "better to say," but which is true.

[1] Read before the Aristotelian Society.

Now to Mr. Bradley's argument that "the idea in judgment is the universal meaning" I have nothing to add. It appears to me conclusive, as against those, of whom there have been too many, who have treated the idea as a mental state. But he seems to me to be infected by the same error as theirs, alike in his preliminary failure to distinguish clearly whether it is the symbol or the symbolised of which he is speaking, and in his final description of the "idea, as meaning," when he has definitely decided in its favour. "A meaning," he says, as we saw above, "consists of a part of the content (original or acquired) cut off, fixed by the mind, and considered apart from the existence of the sign." And again, "an idea, if we use idea of the meaning, is neither given nor presented, but is taken" (p. 8). If indeed "the universal meaning" were thus simply a part of the content of our own ideas, as mental states, and that, too, a part "cut off" by our own minds, it would be intelligible that "truth and falsehood" should still be said to "depend on the relation of our ideas to reality". It will be our endeavour to show, on the contrary, that the "idea used in judgment" is not a part of the content of our ideas, nor produced by any action of our minds, and that hence truth and falsehood are not dependent on the relation of *our* ideas to reality.

I shall in future use the term "concept" for what Mr. Bradley calls a "universal meaning"; since the term "idea" is plainly full of ambiguities, whereas "concept" and its German equivalent "*Begriff*" have been more nearly appropriated to the use in question. There is, indeed, a great similarity between Kant's description of his "*Begriff*," and Mr. Bradley's of his "logical idea". For Kant, too, it is the "analytical unity of consciousness" which *makes* a "*Vorstellung*" or "idea" into a "*conceptus communis*" or "*gemeinsamer Begriff*" (*R.V.*, p. 116 n.).

It is our object to protest against this description of a concept as an "abstraction" from ideas.

Mr. Bradley's doctrine, as above sketched, presupposes that, when I have an idea (*Vorstellung*) of something, that something is itself part of the content of my idea. This doctrine, for the present, I am ready to admit; my question now is whether, when I have an idea of something, that something must not *also* be regarded as something other than part of the content of my idea. The content of an idea is, Mr. Bradley tells us, what the idea is; it is "a character which is different or distinguishable from that of other" ideas, treated as mental facts. Now, before I can

judge at all on Mr. Bradley's theory, a part of this character must have been " cut off and fixed by the mind ". But my question is, whether we can thus cut off a part of the character of our ideas, and atttribute that part to something else, unless we already know, in part at least, what is the character of the idea from which we are to cut off the part in question. If not, then we have already made a judgment with regard to the character of our idea. But this judgment, again, requires, on Mr. Bradley's theory, that I should have had an idea of my idea, and should have already cut off a part of the content of that secondary idea, in order that I may make a judgment with regard to the character of the primary idea that is in question. And similarly it is quite impossible that I should know what the content of my secondary idea is, until I have made it in its turn the object of a third idea, by taking part of this tertiary content. And so on *ad infinitum*. The theory would therefore seem to demand the completion of an infinite number of psychological judgments before any judgment can be made at all. But such a completion is impossible; and therefore all judgment is likewise impossible. It follows, therefore, if we are to avoid this absurdity, that the 'idea used in judgment' must be something other than a part of the content of any idea of mine. Mr. Bradley's theory presupposes that I may have two ideas, that have a part of their content in common; but he would at the same time compel us to describe this common part of content as part of the content of some third idea. But what is gained by such a description? If the part of content of this third idea is a part only in the same sense, as the common part of the other two is a part of each, then I am offering an explanation which presupposes that which was to be explained. Whereas if the part, which is used in explanation, is a part in the only sense which will make my explanation significant, *i.e.*, an existent part, then it is difficult to see how that which belongs to one idea can also come to belong to other ideas and yet remain one and the same. In short, the idea used in judgment is indeed a 'universal meaning'; but it cannot, for that very reason, be described as part of the content of any psychological idea whatever.

These difficulties, which are of the same nature as the famous τρίτος ἄνθρωπος urged against the hypostasised Platonic ideas, inevitably proceed from trying to explain the concept in terms of some existent fact, whether mental or of any other nature. All such explanations do in fact presuppose the nature of the concept, as a *genus per se*, irre-

ducible to anything else. The concept is not a mental fact, nor any part of a mental fact. Identity of content is presupposed in any reasoning; and to explain the identity of content between two facts by supposing that content to be a part of the content of some third fact, must involve a vicious circle. For in order that the content of the third fact may perform this office, it must already be supposed like the contents of the other two, *i.e.*, having something in common with them, and this community of content is exactly what it was proposed to explain.

When, therefore, I say "This rose is red," I am not attributing part of the content of my idea to the rose, nor yet attributing parts of the content of my ideas of rose and red together to some third subject. What I am asserting is a specific connexion of certain concepts forming the total concept "rose" with the concepts "this" and "now" and "red"; and the judgment is true if such a connexion is existent. Similarly when I say "The chimera has three heads," the chimera is not an idea in my mind, nor any part of such idea. What I mean to assert is nothing about my mental states, but a specific connexion of concepts. If the judgment is false, that is not because my *ideas* do not correspond to reality, but because such a conjunction of concepts is not to be found among existents.

With this, then, we have approached the nature of a proposition or judgment. A proposition is composed not of words, nor yet of thoughts, but of concepts. Concepts are possible objects of thought; but that is no definition of them. It merely states that they may come into relation with a thinker; and in order that they *may* do anything, they must already *be* something. It is indifferent to their nature whether anybody thinks them or not. They are incapable of change; and the relation into which they enter with the knowing subject implies no action or reaction. It is a unique relation which can begin or cease with a change in the subject; but the concept is neither cause nor effect of such a change. The occurrence of the relation has, no doubt, its causes and effects, but these are to be found only in the subject.

It is of such entities as these that a proposition is composed. In it certain concepts stand in specific relations with one another. And our question now is, wherein a proposition differs from a concept, that it may be either true or false.

It is at first sight tempting to say that the truth of a proposition depends on its relation to reality; that any pro-

position is true which consists of a combination of concepts that is actually to be found among existents. This explanation was indeed actually used above (p. 179), as a preliminary explanation. And it may be admitted that propositions with which this is the case are true. But if this constituted the truth of a proposition, concepts too might in themselves be true. Red would be a true concept, because there actually are red things; and conversely a chimera would be a false concept, because no such combination either has been, is, or will be (so far as we know) among existent things. But the theory must be rejected as an ultimate one, because not all true propositions have this relation to reality. For example $2 + 2 = 4$ is true, whether there exist two things or not. Moreover it may be doubted here whether even the concepts of which the proposition consists, can ever be said to exist. We should have to stretch our notion of existence beyond intelligibility, to suppose that 2 ever has been, is, or will be an existent.

It would seem, in fact, from this example, that a proposition is nothing other than a complex concept. The difference between a concept and a proposition, in virtue of which the latter alone can be called true or false, would seem to lie merely in the simplicity of the former. A proposition is a synthesis of concepts; and, just as concepts are themselves immutably what they are, so they stand in infinite relations to one another equally immutable. A proposition is constituted by any number of concepts, together with a specific relation between them; and according to the nature of this relation the proposition may be either true or false. What kind of relation makes a proposition true, what false, cannot be further defined, but must be immediately recognised.

And this description will also apply to those cases where there appears to be a reference to existence. Existence is itself a concept; it is something which we mean; and the great body of propositions, in which existence is joined to other concepts or syntheses of concepts, are simply true or false according to the relation in which it stands to them. It is not denied that this is a peculiarly important concept; that we are peculiarly anxious to know what exists. It is only maintained that existence is logically subordinate to truth; that truth cannot be defined by a reference to existence, but existence only by a reference to truth. When I say "This paper exists," I must require that this proposition be true. If it is not true, it is unimportant, and I can have no interest in it. But if it is true, it means only that the concepts, which are combined in specific relations in the

concept of this paper, are also combined in a specific manner with the concept of existence. That specific manner is something immediately known, like red or two. It is highly important, because we set such value upon it; but it is itself a concept. All that exists is thus composed of concepts necessarily related to one another in specific manners, and likewise to the concept of existence.

I am fully aware how paradoxical this theory must appear, and even how contemptible. But it seems to me to follow from premisses generally admitted, and to have been avoided only by lack of logical consistency. I assume Mr. Bradley's proof that the concept is necessary to truth and falsehood. I endeavour to show, what I must own appears to me perfectly obvious, that the concept can consistently be described neither as an existent, nor as part of an existent, since it is presupposed in the conception of an existent. It is similarly impossible that truth should depend on a relation to existents or to an existent, since the proposition by which it is so defined must itself be true, and the truth of this can certainly not be established, without a vicious circle, by exhibiting its dependence on an existent. Truth, however, would certainly seem to involve at least two terms, and some relation between them; falsehood involves the same; and hence it would seem to remain, that we regard truth and falsehood as properties of certain concepts, together with their relations—a whole to which we give the name of proposition.

I have appealed throughout to the rules of logic; nor, if any one rejects these, should I have much to fear from his arguments. An appeal to the facts is useless. For, in order that a fact may be made the basis of an argument, it must first be put in the form of a proposition, and, moreover, this proposition must be supposed true; and then there must recur the dilemma, whether rules of logic are to be accepted or rejected. And these rules once accepted, would seem themselves to offer a confirmation of our theory. For all true inference must be inference from a true proposition; and that the conclusion follows from the premiss must again be a true proposition: so that here also it would appear that the nature of a true proposition is the ultimate *datum*. Nor is an appeal to the "matter" of the proposition more useful than the former appeal to the facts. It may be true that this matter is given in sensation, or in any other conceivable way. We are not concerned with its origin, but with its nature; and its nature, if it is to enter into a true proposition, must, we agree with Mr. Bradley, be the nature of a concept and no

other: and then the old conclusions follow. Nor, finally, is a vicious circle involved in our own attempt to establish conclusions with regard to truth, by rules of logic in which that conception is presupposed. For our conclusion is that truth is itself a simple concept; that it is logically prior to any proposition. But a vicious circle occurs only where a proposition is taken as prior to a concept, or a more complex proposition (one involving more concepts) as prior to one which is more simple. Valid logical processes would seem to be of two kinds. It is possible to start from a complex proposition and to consider what propositions are involved in it. In this case the latter must always be more simple than the former; and they may be true, although the former is false. Or it is possible to start from a more simple proposition and to deduce one that is more complex, by successive additions of concepts; which is the properly deductive procedure exhibited in the propositions of Euclid: and in this case the premiss must be true, if the conclusion is so. It may be well to state that both procedures are synthetic, in the sense that the results arrived at are different from the premisses, and merely related to them. In a vicious circle, on the other hand, the two procedures are confused. A result arrived at by the former of the two processes just described, is regarded as involving the truth of its premiss. Thus, when we say that the conceptual nature of truth is involved in logical procedure, no vicious circle is committed, since we do not thereby presuppose the truth of logical procedure. But when an existent is said to be involved in truth, a vicious circle is committed, since the proposition "Something is true," in which "Something exists" is supposed to be involved, must itself be true, if the latter is to be so.

It seems necessary, then, to regard the world as formed of concepts. These are the only objects of knowledge. They cannot be regarded fundamentally as abstractions either from things or from ideas; since both alike can, if anything is to be true of them, be composed of nothing but concepts. A thing becomes intelligible first when it is analysed into its constituent concepts. The material diversity of things, which is generally taken as starting-point, is only derived; and the identity of the concept, in several different things, which appears on that assumption as the problem of philosophy, will now, if it instead be taken as the starting-point, render the derivation easy. Two things are then seen to be differentiated by the different relations in which their common concepts stand to other concepts. The opposition

of concepts to existents disappears, since an existent is seen to be nothing but a concept or complex of concepts standing in a unique relation to the concept of existence. Even the description of an existent as a proposition (a true existential proposition) seems to lose its strangeness, when it is remembered that a proposition is here to be understood, not as anything subjective—an assertion or affirmation of something—but as the combination of concepts which is affirmed. For we are familiar with the idea of affirming or "positing" an existent, of knowing objects as well as propositions; and the difficulty hitherto has been to discover wherein the two processes were akin. It now appears that perception is to be regarded philosophically as the cognition of an existential proposition; and it is thus apparent how it can furnish a basis for inference, which uniformly exhibits the connexion between propositions. Conversely light is thrown on the nature of inference. For, whereas it could not be maintained that the conclusion was only connected with the premisses in my thoughts, and that an inference was nothing, if nobody was making it, great difficulty was felt as to the kind of objectivity that belonged to the terms and their relation, since existence was taken as the type of objectivity. This difficulty is removed, when it is acknowledged that the relation of premisses to conclusion is an objective relation, in the same sense as the relation of existence to what exists is objective. It is no longer necessary to hold that logical connexions must, in some obscure sense, exist, since to exist is merely to stand in a certain logical connexion.

It will be apparent how much this theory has in common with Kant's theory of perception. It differs chiefly in substituting for sensations, as the data of knowledge, concepts; and in refusing to regard the relations in which they stand as, in some obscure sense, the work of the mind. It rejects the attempt to explain "the possibility of knowledge," accepting the cognitive relation as an ultimate *datum* or presupposition; since it maintains the objections which Kant himself urged against an explanation by causality, and recognises no other kind of explanation than that by way of logical connexion with other concepts. It thus renounces the supposed unity of conception guaranteed by Idealism even in the Kantian form, and still more the boasted reduction of all differences to the harmony of "Absolute Spirit," which marks the Hegelian development. But it is important to point out that it retains the doctrine of Transcendentalism. For Kant's Transcendentalism rests on the distinction between empirical and *a priori* propositions. This is a distinc-

tion which offers a striking correspondence to that between the categorical and hypothetical judgments; and since one object of this paper is to combat the view which inclines to take the categorical judgment as the typical form, and attempts in consequence to reduce the hypothetical judgment to it, it will not be out of place to discuss Kant's distinction at some length.

Kant himself offers us two marks by which an *a priori* judgment may be distinguished. 'A proposition,' he says, 'which is thought along with its necessity is an *a priori* judgment.' And it is absolutely *a priori* only if it be not deduced from any proposition, that is not itself a necessary proposition. The second mark of the *a priori* is strict universality. But unfortunately Kant himself seems to admit the invalidity of this as a mark; since he immediately proceeds to state that an empirical universality may hold in all cases ('for example, in the proposition: All bodies are heavy') and hence be strictly universal.[1]

It is true Kant states that this empirical universality is merely arbitrary. We ought, he says, to express our proposition in the form: 'So far as we have yet observed, there is no exception from' the rule that all bodies are heavy. But it would seem that such a qualification can only affect the truth of our proposition and not its content. It may be questioned whether we have a right to assert universality, but it is universality which we assert. The limitations which Kant points out as belonging to the proposition, can properly be expressed only in the doubt whether we have found a rule at all, not in a doubt whether there are exceptions to it. It may not be true that all bodies are heavy; but whether true or not, it is a universal proposition. There is no difference between this proposition and such as are *a priori*, in respect of universality. And Kant could hardly wish to assert that the difference lay in its truth. For this proposition, he would admit, may be true; and, if so, then it would be *a priori*. But he would not admit the suggestion that it *may* be *a priori*: he asserts that it is not so. The difference between the empirical and the *a priori*, if there is a difference, must therefore be in some other mark than in this universality, which Kant nevertheless asserts to be 'by itself an infallible criterion' (*ib.*, p. 35). We may next consider whether such a mark is to be found in 'necessity'.

In this investigation, too, it may be well to examine his example 'All bodies are heavy,' since this proposition might

[1] *R.V.*, p. 35. 'Hartenstein, ed. 1867.'

seem to have a claim to necessity also, just as it is undoubtedly universal. Kant speaks of it as 'a rule borrowed from experience' (*ib.*, p. 34). By this language and by his use of 'Bodies are heavy' as convertible with it, he would seem to suggest that he would not base its empirical character solely on its extensional interpretation. If, as seems probable, he would allow 'Body is heavy' or 'Man is mortal,' to be equally empirical propositions, then it is plain that what he calls empirical may involve necessity. It is certain, at all events, that if we are to understand by empirical propositions only such as experience can justify, such a proposition as 'All bodies are heavy' cannot be regarded as empirical. It is based on the proposition 'Body is heavy,' with which, if it is to be used for purposes of inference, it must be regarded as convertible. I assume, therefore, that Kant would not have refused to regard 'Body is heavy' as an empirical proposition. It would seem certainly to come under his class of 'rules drawn from experience,' whereas 'All bodies are heavy,' regarded solely as extensional, cannot be called a rule. The use of this example would seem to lead to important results with regard to the true definition of empirical propositions.

But let us first return to 'All bodies are heavy'; since even this would seem to involve in its very meaning an assertion of necessity. If it be taken purely in extension, it must be resolved into 'This body, and that body, and that body, *ad infinitum*, are, have been and will be heavy'. It involves, therefore, the proposition 'This body is heavy'. But in any proposition of this simple categorical form the notion of substance and attribute is already involved.[1] Wherever a predicate is asserted of a subject, it is implied that the subject is *a thing;* that it is something marked by the possession of certain attributes and capable of possessing others. 'This body is heavy' presupposes, therefore, 'Body is a thing, and heaviness is a mere attribute'. For we could not convert the proposition into 'Heaviness is corporeal'. But that 'Body is a thing,' and that 'Heaviness is an attribute,' would seem to be necessary propositions. We may indeed be mistaken in supposing that they are true; but if we were ever to find that heaviness was not an attribute, we should be bound to conclude that it never had been and never would be, not that it was so once but had ceased so to be. All such judgments are truly 'thought along with their necessity'. They are as necessary as that 2+2=4. The difference between

[1] Cf. *R.V.*, p. 36.

the two forms of proposition lies not in that the former lacks necessity, nor even that it implies the proposition ' Heaviness exists '; for even if heaviness did not exist, the proposition would be true. The proposition means that heaviness could not be other than an attribute ; and hence, if Kant's words (p. 34) are to be taken strictly, it cannot be empirical. In this respect, therefore, it is quite on a level with ' $2+2=4$ '; which also would be true even if there were no two things. The difference seems to lie rather in the nature of the concepts of which the necessary relation is predicated. ' Heaviness ' can exist ; it is not meaningless to say ' Heaviness exists here and now '; whereas ' attribute,' ' two,' and other like conceptions can only claim a precarious sort of existence in so far as they are necessarily related to these other notions of which alone properly existential propositions can be made.

If, therefore, we wish to find propositions involving no necessity,[1] we must descend to purely existential propositions—propositions which do not involve the notions of substance and attribute. These alone can be truly taught us by experience, if experience ' cannot teach us that a thing could not be otherwise ' (p. 34). And even these are free from necessity, only if they are understood to assert something with regard to an actual part of actual time. They must involve necessity as soon as the distinction between ' This is ' and ' This was ' is disregarded. It would seem, in fact, to be a mark of the sort of existence which they predicate that it is in time. They may affirm ' This exists,' or ' This has existed,' but if they take the general form ' This is,' that must always be understood to mean no more than ' This always has been, is now, and always will be,' and can be strictly analysed into as many different judgments as time is divisible into separate moments.

If, therefore, the difference between the empirical and *a priori* lay primarily, as Kant implies, in the nature of the judgment, not in that of the concept, only existential propositions could be empirical. In order to represent even ' This body is heavy ' as an empirical proposition, it would be necessary to analyse it into the form ' Heaviness and the marks of body exist here and now '. But this is certainly not its whole meaning. We must, therefore, suppose that in order to obtain a clear definition of what Kant meant by empirical propositions, we must base it upon the nature of the

[1] Even these involve the necessary properties of time ; but this point may be reserved for later consideration.

concepts used in them. Empirical concepts are those which can exist in parts of time. This would seem to be the only manner of distinguishing them. And any proposition into which an empirical concept enters may be called empirical.

Kant himself does recognise the necessity involved in such a proposition as 'This body is heavy,' although, for reasons which will appear hereafter, he states it in a somewhat different way. The main object of his 'Analytic' is to show that any such judgment involves a 'synthesis of the manifold of sense-intuition,' which is 'necessary *a priori*' (p. 126). But he regards this synthesis rather as necessary in order to bring mere perceptions into relation with the 'unity of apperception,' than as directly involved in the empirical judgment. Moreover, in order to explain how the forms of synthesis can apply to the manifold, he introduces the inner sense as mediator, and describes the judgment as converting the psychical connexion of the presentations into an objective connexion rather than as applying the categories to a mere manifold, which cannot properly be described as psychical. Accordingly he gives as the ultimate empirical judgment, out of which the application of substance and attribute produces 'Bodies are heavy,' the subjective judgment 'When I carry a body, I feel an impression of heaviness,' instead of that given above 'Heaviness and the marks of body exist together.'[1] He does not seem to see that his subjective judgment already fully involves the category in question. A statement about my feelings is just as 'objective,' in the required sense, as a statement about what is conceived as in space.

With the above definition, therefore, it is obvious why 'Body is heavy' should be called empirical; whereas, if absence of necessity had been the mark required, it would have been difficult to find a reason. For this proposition does not only involve, like 'This body is heavy' or 'All bodies are heavy,' the necessary judgments that body is a thing, and heaviness an attribute; it asserts a relation between a 'heaviness' and 'corporeity' such as no experience can prove or disprove. If we found a body which was not heavy, that would indeed lead us to deny the truth of the proposition; but it would also entitle us at once to the opposite necessary proposition 'Body cannot be heavy'. And this is just what holds of $2 + 2 = 4$. It is perhaps inconceivable to us now that two and two should not make four; but, when numbers were first discovered, it may well have been thought that two and two made three or five.

[1] P. 121, *cf.* also *Prol.*, p. 54 n.

Experience, no doubt, must have been the means of producing the conviction that this was not so, but that two and two made four. The necessity of a proposition, therefore, is not called in question by the fact that experience may lead you to think it true or untrue. The test of its necessity lies merely in the fact that it must be either true or untrue, and cannot be true now and untrue the next moment · whereas with an existential proposition it may be true that this exists now, and yet it will presently be untrue that it exists. The doubt about the truth of 'Body is heavy' would seem to proceed chiefly from our uncertainty as to what we mean by 'Body' and by 'heavy'. We cannot recognise instances of them with as great precision as we recognise instances of number; and hence we cannot be sure whether the truth of our proposition may not be overthrown. The proposition is arbitrary solely in this sense. There would seem no doubt that we mean by it to assert an absolute necessity; but between what precise concepts the necessary relation, of which we are certain, holds, we must leave to experience to discover.

From the foregoing analysis it would, therefore, appear that the true distinction upon which Kant's division of propositions into *a priori* and *a posteriori*, necessary and empirical, is based, is the distinction between concepts which can exist in parts of time and concepts which seem to be cut off from existence altogether, but which give rise to assertions of an absolutely necessary relation. Kant would seem to include among empirical propositions all those in which an empirical concept is used; whether the proposition asserts a necessary relation between an empirical and an *a priori* concept, or between two empirical concepts. What it is important to emphasise is that these two kinds of proposition are not distinguished by the absence of the marks which he gives for the *a priori;* they both include both necessity and strict universality. Empirical propositions would therefore include a wide range of propositions, differing very much in the meaning of their assertions. They seem to extend upwards from mere assertions of the existence of this or that, of the type 'Heaviness exists here and now'; through propositions of the usual categorical form 'This body is heavy,' which include necessary propositions in their meaning, but at the same time imply an assertion of existence; to propositions which assert existence at every time, while still retaining the element of necessity included in the last, like 'All bodies are heavy'; and finally to those propositions, upon which alone the validity of the last class can be based

—propositions which assert a necessary relation, without any implication of existence whatever, of the type 'Body is heavy'. The only common element in all these different classes would seem to be that they all make assertions with regard to some empirical concept, *i.e.*, a concept which can exist in an actual part of time. The second and third classes are mixed and involve necessity, because there is also included in them an assertion with regard to an *a priori* concept. To all of them Kant would seem to oppose as purely *a priori* propositions, those which make an assertion solely with regard to *a priori* concepts and which for that reason can imply no assertion of existence, since an *a priori* concept is one which cannot exist in the limited sense above explained.

The line of division, therefore, upon which Kant's Transcendentalism is based, would seem to fall between propositions involving empirical concepts and those which involve none such; and an empirical concept is to be defined, not as a concept given by experience, since all concepts are so given, but as one which can exist in an actual part of time. This division is necessary in order to include all the various kinds of propositions which Kant includes under the term empirical, many of which involve *a priori* concepts. If the division were to be based on the nature of the propositions, as such, as Kant pretends to base it, we saw that pure existential propositions alone could be thought to have a claim to form a class by themselves, as empirical propositions. These do indeed obviously form the basis of the other division; for a simple concept cannot be known as one which could exist in time, except on the ground that it has so existed, is existing, or will exist. But we have now to point out that even existential propositions have the essential mark which Kant assigns to *a priori* propositions—that they are absolutely necessary.

The distinction of time was said to be ultimate for an existential proposition. If this is so, it is obvious that necessary propositions, of the kind which Kant endeavours to establish in the Æsthetic, are involved in them. It was pointed out that a pure existential proposition could only assert the existence of a simple concept; all others involving the *a priori* concepts of substance and attribute. If now we take the existential proposition "Red exists," we have an example of the type required. It is maintained that, when I say this, my meaning is that the concept "red" and the concept "existence" stand in a specific relation both to one another and to the concept of time. I mean that "Red

exists now," and thereby imply a distinction from its past and future existence. And this connexion of red and existence with the moment of time I mean by "now," would seem to be as necessary as any other connexion whatever. If it is true, it is necessarily true, and if false, necessarily false. If it is true, its contradictory is as fully impossible as the contradictory of $2 + 2 = 4$.

But the necessity thus involved in existential propositions does not do away with the importance of Kant's distinction between the empirical and the *a priori*. So far as he attempts to base it upon the fact that what is empirical alone is "given in experience" and may be referred to "sense," it must indeed be given up; but as against the English philosophers, who held the same view about sense-knowledge, it retains its full weight. The Transcendental Deduction contains a perfectly valid answer to Hume's scepticism, and to empiricism in general. Philosophers of this school generally tend to deny the validity of any propositions except those about existents. Kant may be said to have pointed out that in any of these propositions, which the empiricists considered to be the ultimate, if not the only, data of knowledge, there was involved by the very same logic on which they relied to support their views, not only the uniform and necessary succession of time, and the geometrical properties of space, but also the principles of substance and causality. He does not, indeed, thereby prove the truth of the axioms and principles in question; but he shows that they are at least equally valid with, and more ultimate than, those upon which empiricism builds. Although, therefore, it seems no longer possible to hold, as Kant held, that a reference to existents is necessary to any proposition that is to claim the title of "knowledge," and that the truth of such propositions can alone claim *immediate* certainty; although, on the contrary, it seems that existential propositions are only a particular class of necessary proposition: yet the transcendental deduction is still important. A deduction from the "possibility of experience" does not indeed really represent the nature of Kant's argument. For the possibility of experience presupposes that we have experience, and this again means that certain existential propositions are true: but this does not involve the truth of any particular existential propositions; although its truth is involved in theirs. What Kant really shows is that space and time and the categories are involved in particular propositions; and this work is of greater value than a deduction from the possibility of experience would have been. He does not indeed recog-

nise that the propositions from which he is deducing are themselves necessary, and that there may therefore be other necessary propositions, with a like claim to certainty, not to be deduced from them. He therefore imagines himself to have exhausted the field of knowledge; whereas in fact he has only shown certain logical connexions within that field. But it is not here proposed to dispute the truth of particular existential propositions; and though, unlike Kant, we admit them to be merely assumed, we may be thankful that he has shown us what can be inferred from them.

Moreover, Kant's distinction between space and time on the one hand, and the categories on the other, also retains its value, though we can no longer describe their general difference as he did. It seems rather to be this: That time alone is sufficient for some sort of experience, since it alone seems to be involved in the simplest kind of existential proposition, *e.g.*, "Pleasure exists"; and that again time and space together will suffice to account for the possibility of other pieces of knowledge, without the use of the categories. It is necessary to make a fresh assumption of propositions such as even Hume recognised, and such as are universal in physical science, in order to find the principles of substance and accident and causality implied. In all such propositions time and space are presupposed as well, but these categories are not implied in every proposition involving time and space.

The simplest existential propositions are then to be regarded as necessary propositions of a peculiar sort. In one kind the necessary properties of time are involved; in another those of space also. But though this fact, which Kant points out, is very important against empiricists, we cannot regard it with him as establishing the truth of geometry and of the corresponding propositions about time. For existential propositions which are false, as well as those which are true, involve the same propositions about space and time. No existential proposition of any sort seems discoverable, which might not thus be false; not even the famous "cogito" is indubitable. We cannot, therefore, take the "possibility of experience," in any possible sense, as sufficient warrant for our knowledge of space and time; and we must regard the truths of geometry as independently known for true, just in the same way as some existential propositions are so known.

Similarly, those propositions which involve substance and attribute are not sufficient to establish the truth of the propositions thereby involved. The permanence of substance is

indeed, Kant shows us, as certain as the empirical propositions which Hume took to be alone certain. But its truth must be known independently of these, since it is involved also in false propositions of this type. It would, in fact, be true, whether any such propositions were true or not. Kant has only taught us that, if any of them are true, it must be so likewise. He failed to see that its truth may be asserted immediately on the same ground as theirs; for he was misled by the previous course of philosophy to suppose that there was something more immediately indubitable in them. Their truth is, in fact, the last thing which common sense doubts, in spite of its familiarity with erroneous perceptions. Kant's merit was in pointing out, what he himself did not recognise, that their being undoubted does not prove them to be indubitable; or rather, that the doubt which is cast on some of them proves conclusively, what common sense, in its contentment with rules that have exceptions, does not perceive, that they are highly doubtful.

Our result then is as follows: That a judgment is universally a necessary combination of concepts, equally necessary whether it be true or false. That it must be either true or false, but that its truth or falsehood cannot depend on its relation to anything else whatever, reality, for instance, or the world in space and time. For both of these must be supposed to exist, in some sense, if the truth of our judgment is to depend upon them; and then it turns out that the truth of our judgment depends not on them, but on the judgment that they, being such and such, exist. But this judgment cannot, in its turn, depend on anything else, for its truth or falsehood: its truth or its falsehood must be immediate properties of its own, not dependent upon any relation it may have to something else. And, if this be so, we have removed all reason for the supposition that the truth and falsehood of other judgments are not equally independent. For the existential judgment, which is presupposed in Kant's reference to experience or in Mr. Bradley's reference to reality, has turned out to be, as much as any other, merely a necessary combination of concepts, for the necessity of which we can seek no ground, and which cannot be explained as an attribution to 'the given'. A concept is not in any intelligible sense an 'adjective,' as if there were something substantive, more ultimate than it. For we must, if we are to be consistent, describe what appears to be most substantive as no more than a collection of such supposed adjectives: and thus, in the end, the concept turns out to be

the only substantive or subject, and no one concept either more or less an adjective than any other. From our description of a judgment, there must, then, disappear all reference either to our mind or to the world. Neither of these can furnish 'ground' for anything, save in so far as they are complex judgments. The nature of the judgment is more ultimate than either, and less ultimate only than the nature of its constituents—the nature of the concept or logical idea.

IV.—JAMES ARBUCKLE AND HIS RELATION TO THE MOLESWORTH-SHAFTESBURY SCHOOL.

By W. R. Scott.

Sir James Mackintosh, in writing of Hutcheson's life at Dublin, says that Ireland "is truly *incuriosa suorum*,"[1] and this remark applies with greater force to the work of James Arbuckle, the contemporary and friend of Hutcheson; though in introducing it one is liable to make an Irish "bull," since Arbuckle, though he lived in Dublin, was of Scotch extraction, and had been educated at Glasgow.

It would scarcely be necessary to rake together the ashes of the past to form an estimate of an obscure minor thinker such as Arbuckle, were it not that his work constitutes a few pages in what might be described as a lost chapter in the history of British Philosophy. Whether Hutcheson's title as "father" or "founder" of the "Scottish Philosophy" be accepted or not, his connexion with Shaftesbury needs some fuller explanation than it has yet received. All historians of Philosophy, who treat of Hutcheson, show that there was a more or less close connexion between his system and the ethical "virtuososhiip" of Shaftesbury. Now Shaftesbury was essentially English, by birth, residence and mode of thought, while Hutcheson was, of course, best known as a celebrated and influential Professor at Glasgow. Yet Hutcheson's views are generally taken as having been fully formed prior to his arrival at Glasgow, and there is abundant evidence to show that he received his main philosophic impetus while living as a young man at Dublin. How exactly this came about could scarcely be explained within the limits of a single article, and one must be content with a bare mention of the interesting fact that in Shaftesbury we have the germ of what is known as the "Scottish Philosophy"—that is, the germ may be said to be English—this germ was developed by Hutcheson and others at Dublin, and the complete product gained academic expression and popular recognition in Scotland. Were we not growing familiar with the somewhat

[1] *Dissertation on Ethical Philosophy*, p. 204.

commercial expression "Philosophy made in Germany," to say that the so-called Scottish Philosophy was made in Ireland might occasion something of a mental shock!

The full discussion of the influences to which Hutcheson was subjected in Dublin would be somewhat lengthy, owing to the number of events in his life that are difficult to determine, and also to the fact that his friends are singularly elusive to a biographer; for, while all of them were men of mark and importance, they seem to have been unanimous in leaving few traces of their thought behind them. It is for this reason that the history of Hutcheson's early development may be said to be almost, if not quite, a lost chapter in the History of Philosophy, and, therefore, the few pages of it that can be recovered, which deal with his friend Arbuckle, gain a reflected interest to which they would scarcely be entitled upon their intrinsic merits.

The earliest account of Arbuckle is contained, in MS., in a copy of his poem *Glotta*, which is preserved in the Library of the British Museum. It runs as follows: "James Arbuckle was a native of Ireland, and, after going through his University course, at Glasgow College, he settled, as a schoolmaster, in the north of Ireland. He possessed genius, as his poems show. He was the author of *Snuff—a Poem by Mr. James Arbuckle*, printed at Glasgow in 1717. 8vo. He addressed laudatory verses to Allan Ramsay, who, in January, 1719, wrote an Epistle, in verse, to Mr. James Arbuckle. (See Ramsay's *Poems*, 1800, 8vo., vol. i., p. clxxxiii., and vol. ii., p. 359). Arbuckle projected a translation of Virgil but did not finish it.

"He died in 1734, aged 34."

Notwithstanding the meagreness of this brief sketch, it is incorrect in several particulars, more especially in the date of Arbuckle's death, which, as will be seen below, is antedated by some dozen years. This being so, it is doubtful whether any reliance can be placed upon the statement that in 1734 he was thirty-four years of age, but this is the only clue to the date of his birth, which would thus be assigned to the year 1730. Failing such untrustworthy evidence, approximate dates might be mentioned as between 1697 and 1705.

From other sources one gathers that James Arbuckle was the son of a Presbyterian minister of the well-known Dublin Congregation of Usher's Quay.[1] Like most of the Presbyterian clergy in Ireland, he was of Scotch extraction, and

[1] *Sermons of John Abernethy.* London, 1748, i., p. 39.

looked to Scotland as his home, regarding his position in Ireland rather as that of a colonist than as that of a native of the country. Hence it was only to be expected that he sent his son to Scotland to the University of Glasgow. It was therefore at Glasgow that James Arbuckle took his M.A. degree in 1720.[1]

Arbuckle may have met Hutcheson at Glasgow, as he seems to have matriculated just before Hutcheson left to return to Ireland. He found himself at once plunged into a scene of turmoil and strife. At this period Stirling was Principal. He appears to have been a man of slight scholarship, and his influence was rather in the direction of the academic loaves and fishes, than the maintenance either of discipline or culture. To increase his own influence, he represented that, owing to the state of political feeling after the Rebellion, "it might occasion strife to call the students together to choose a Rector," and, therefore, he claimed the right of nominating three names, from which list the Rector was to be chosen by the Professors (or Regents as they were then), thereby depriving the students of one of their most cherished privileges.[2] This led to the outbreak of 1718, when some of the Professors took the students' side, and were even accused of exciting the students to riot.[3] Arbuckle seems to have been prominent in the dispute, and he came in collision with the Principal, through his writing Prologues for the students' performances of "Cato" and "Tamburlaine" —performances avowedly designed as a protest against the Principal. If Stirling was not a scholar, Arbuckle found him a "good hater," and on several occasions his academic career appears to have been in danger of sudden curtailment. In the Students' Pamphlet already mentioned, it is alleged that Stirling went so far as to obtain an act of the Senatus "to suppress Immorality," which was really directed against

[1] *Munimenta Univ. Glasg.*

[2] *A Short Account of the Late Treatment of the Students of the University of Glasgow.* Dublin, 1722, pp. 5, 6. The copy of this very rare pamphlet in the Glasgow University Library is endorsed, "said to have been written by Mr. Robertson, probably the same who was expelled in 1725, but the sentence taken off by visitation in 1727," and in another place "*sometimes ascribed to James Arbuckle*". Some of the references to Arbuckle are not such as he would have been likely to have written himself, nor is the style like that of his prose works. It is very probable that the pamphlet was the work of several students, and that Arbuckle bore his part in its composition. (An account of Robertson's career at Glasgow will be found in the *Christian Moderator*, ii., p. 308.)

[3] Wodrow MSS. (Advocates' Library, Edinburgh), No. 41, Nos. 95-9.

a literary club of which Arbuckle happened to be a member.[1] When Arbuckle entered as a Theological student in 1721, he was more in the Principal's power, and his friends asserted that Stirling endeavoured to damage his character, and even prevent his obtaining admission to the Communion.[2] Possibly owing to the Principal's condemnation, Arbuckle changed his mind with regard to his profession, and we find him gaining the degree of M.D. in 1724.

Not only had Arbuckle taken a prominent part in what might be called college politics, but, at the same time, he published several poems which gained him a considerable local reputation. In 1719 he published *Snuff—a Poem*, also *An Epistle to Thomas, Earl of Haddington, upon the death of Joseph Addison*, and, in 1721, *Glotta—a Poem*, upon the title-page of which he describes himself as a member of the University of Glasgow. These are written in the metre Pope had made, if anything, too popular; and *Glotta* is the only one that calls for remark. It is of considerable interest as giving a description of the University and the teaching of the time, and it is very creditable to Arbuckle that he does not introduce any contentious subjects, confining himself to a description of the University and its scholastic activity. If any indication of Arbuckle's tastes can be drawn from the amount of space devoted to the different subjects, it would appear that he was most impressed by Natural Philosophy. The lines devoted to the Philosophical department—

> Or what more nearly touches human kind,
> The powers and Nature of Eternal Mind
> *Which only conscious of its being knows*
> *Th' Eternal Source from which that being flows*[3]—

clearly show that, as a student, Arbuckle was under Cartesian influence, and this is of interest in view of the fact that four years later he will be found to have developed in quite a different direction.

In 1724, then, having finished with the University, Arbuckle returned to Dublin, though there is a tradition that he taught a school between the completion of his university course and his arrival in Dublin,[4] this seems unlikely since we find him well established in Dublin in 1725, and having made numerous friends, which would be difficult if he had only just arrived.

The most important event in Arbuckle's early life, and

[1] *Short Account, ut supra*, p. 24. [2] *Ibid.*, p. 25.

[3] *Glotta—a Poem*, Glasgow, 1721.

[4] MS. prefixed to an edition of Glotta, in the Library of the British Museum, *vide supra*.

one destined to have considerable influence upon the history of Philosophy, was his introduction to Lord Molesworth—perhaps by Hutcheson. Molesworth had been a wealthy merchant, and had held a diplomatic appointment at the Danish Court, which occasioned his *Account of Denmark as it was in the Year* 1692. This work introduced him to the notice of Locke and Shaftesbury. He corresponded with the latter as well as with Toland,[1] and his letters show an appreciation of philosophic questions and methods. At this time he was a prominent figure in Dublin society, and, while still deeply interested in parliamentary affairs, he found a more congenial occupation in entertaining and conversing with persons of literary and philosophic tastes. Even Swift, who was chary of praise, writes: "I am no stranger to his Lordship, and, excepting in what relates to the Church, there are few persons in whose opinions I am better disposed to agree".[2]

Molesworth has left no writings dealing with Philosophy, but it is easy to gather the general drift of his opinions. Owing to his personal relations with many of the most prominent thinkers of the day, he was wholly on the side of what was then the most modern and advanced thought, and he was most influenced by his friend Shaftesbury. It is true that Shaftesbury's letters were written some years before Molesworth met Arbuckle and Hutcheson, but it can be shown that he rather adopted than diverged from Shaftesbury's principles as time went on. As late as 1722, three years before his death, he wrote to Archbishop King, the author of *De Origine Mali*, evidently defending Shaftesbury's view of moral obligation, which King criticises in a letter still extant,[3] and, if further proof were needed, it would be found in the early essays of his followers which, as will be seen, were published in the *Dublin Journal*.

It has sometimes been said that Shaftesbury had a few isolated adherents but that there was no Shaftesbury-school; yet, owing to Molesworth, his Philosophy was perpetuated and became fruitful amongst a group of earnest young thinkers at Dublin. Molesworth must have been a man of singular power in gaining the conviction of others, for,

[1] *Biographia Britannica*. There is an interesting letter from Archbishop King to Molesworth (preserved in the library of Trinity College, Dublin) in answer to one of Molesworth's in which he had defended Toland. Needless to say, King is severe on the "Atheist".

[2] *Swift's Works*, ed. Sir W. Scott, viii., p. 299.

[3] King to Molesworth, 2nd Jan., 1722. King's MS. Letters, *ut supra*.

though he himself wrote nothing of a philosophical nature, his conversations left a deep impress upon the men he gathered round him. His environment and circle of friends at Blanchardstown—his country-seat near Dublin—recall some of the best traditions of what are often called the "Greek Schools". Here we find a man, past the prime of life, who had spent his youth in travel and the service of the state, who had come in contact with well-known thinkers of his day, engaged in the discussion of abstract theories with younger men—probably without any view of teaching as the word is now understood.

Hutcheson, Edward Synge, a Fellow of Trinity College, whom Berkeley succeeded as Bishop of Cloyne, as well as several others, were intimates of Molesworth and participated in the discussions at Blanchardstown. With the advent of Arbuckle a desire for literary expression manifested itself amongst the little group of disciples of Shaftesbury. At this period the essay was the favourite "literary vehicle," and, in all probability, Molesworth had sufficient influence with the proprietor of a new Dublin weekly paper, called the *Dublin Journal*, to induce him to accept all articles or letters sent him by Arbuckle, who signed himself "Hibernicus" and acted as general editor, and later on the letters of the Molesworth *coterie* were added to by others from outside sources. The *Dublin Journal* was a medium-sized octavo, a little smaller than the *Spectator* or *Saturday Review* of to-day, consisting of four pages, containing foreign and local news, with a few advertisements. Arbuckle's articles, written in the form of letters and addressed to the "Author of the *Dublin Journal*," occupied the position of the leading article. Early numbers of this paper are extremely rare, a few are preserved in the libraries of Trinity College, Dublin, of Archbishop Marsh, and of the Royal Irish Academy, but the best collection is that in the National Library (Dublin), which begins with No. 125, dated 19th August, 1727, and contains about 220 numbers extending with a few gaps till 25th December, 1731.

Arbuckle's first article appeared in the issue of 3rd April, 1725, and, with the aid of his friends, he contributed weekly until 25th March, 1727. Had these articles not been collected and republished by the generosity of the second Lord Molesworth, all record of the Molesworth-Shaftesbury school would have perished.

The first letter, after explaining the general object, adds, that "several honest gentlemen have resolved to make the paper a canal for conveying to the public some little essays

they have lying on their hands ".[1] When the whole series, amounting to 102 letters, was published in volume form in 1729, Arbuckle, in his dedication to the second Lord Molesworth (the first, who was the friend of Shaftesbury and founder of the "school," having died in 1725), mentions that many of his own contributions were composed under "Lord Molesworth's roof,"[2] and this suggests the guess that the members of the Blanchardstown *coterie* were in the habit of writing papers and submitting them to the judgment of the others.

The greater part of the Essays, which appeared in the *Dublin Journal* from 3rd April, 1725, to 25th March, 1727, are philosophical, and should be compared rather to Coleridge's *Friend* than to Addison's *Spectator*. Many of them were written by Arbuckle, six by Hutcheson, two by Samuel Boyse the theologian, and one is given up to posthumous verses by Parnell. The remainder, with one exception, are by writers unknown to Arbuckle, and most of these are deficient both in style and matter, yet these are the only papers that profess to deal with those topics of general interest that yielded such admirable results under the treatment of Addison and Steele. Those that emanate directly from the Molesworth *coterie* possess some interest as showing the same Shaftesbury influence, Hutcheson beginning to advance a little beyond what he had learned from Molesworth; he is academic, thorough, and, it must be admitted, a little wearisome; Arbuckle, on the other hand, if less original, expounds Shaftesbury with something of the brightness and *verve* that is such a prominent feature of the *Characteristics*. He writes freely, pleasantly, with point and force, and never scruples to drive home his most abstract theories by plain homely examples.

The death of Molesworth on 22nd May, 1725, removed one incentive to philosophical inquiries amongst some of his young friends, and Arbuckle's work in this direction ends with his publication of his articles in volume form in 1729. The next year he lost Hutcheson, who was elected Professor of Moral Philosophy at Glasgow; and, having met Swift, his literary energies took an altogether new direction. Swift had an utter contempt for philosophy, especially modern philosophy, and, finding that Arbuckle was possessed of a certain dry humour of his own, he promptly nicknamed him

[1] *Hibernicus's Letters: A Collection of Letters and Essays lately Published in the* Dublin Journal. London, 1729, i., p. 4.

[2] *Hibernicus's Letters*, i., p. 5.

"Wit-upon-crutches".[1] It would no doubt have been no small satisfaction to Swift's sardonic spirit to have known that this nickname is the only record of Arbuckle's personal deformity.

Owing, too, to the loss of his patron, Molesworth, he was dependent upon his profession, and this may have placed difficulties in his way which may have prevented him from continuing his philosophical work. As a medical man he seems to have enjoyed a considerable popularity, and it is pleasant to record the judgment of a contemporary, that "his charity to the poor in his attendance upon them, was conspicuous to all. And it is known to such as were intimately acquainted with him that he was industrious in finding out ways of serving persons in concealed distress of circumstances."[2]

For the remainder of his life his literary work is to be found in second-rate verses dealing with the literary and personal controversies of the day. Some of these are preserved in Swift's works, others in rare pamphlets and probably many more are lost amongst the mass of anonymous productions of this kind—or at least are difficult to trace.[3]

Although Hutcheson was several times in Dublin after his removal to Glasgow, he seems to have been unable to recall Arbuckle to his early devotion to Philosophy. In the MS. correspondence of Hutcheson with Dr. Drennan of Belfast there are frequent references to the philosophical opinions of almost all his other Irish friends, but Arbuckle's name only occurs twice—once in reference to a remittance of money for the use of an Irish student at Glasgow and again in connexion with a sample of Glasgow weaving,[4] which becomes intelligible when one remembers Swift's

[1] *Swift's Works*, Faulkiner's Edition, vol. xvii., p. 1, note.

[2] *A Sermon from Ecc. vii.* 4, *on the Death of Dr. Arbuckle, a Physician and Member of Wood St. Congregation, preached Jan.* 4, 1747. Dublin, 1747.

[3] During the latter half of the year 1727 Arbuckle still continued to contribute articles to the *Dublin Journal* signed by Hibernicus. Nearly half of these are verses, and most of the remainder deal with popular subjects. The only one of a philosophical nature is that published in No. 127, on 2nd Sept., 1727, exposing scholastic quibbling. After 30th Jan., 1728, there do not appear to be any more Hibernicus letters, though it is quite possible that Arbuckle may have changed his *nom-de-plume* and contributed some of the economic articles.

[4] "My wife has troubled you with a little bundle of thread, which she sent by one Clerk, a lad who deals in Linen cloath, the Thread must be sent to Dr. Arbuckle by the first safe opportunity."

MS. Letter of Hutcheson to Dr. Drennan dated 31st Jan., 1737 (in possession of Miss Drennan, Belfast).

pamphlets on the woollen industries and that Arbuckle was now in close contact with his views. This incident so small in itself is very typical of the break-up of the little Shaftesbury School; to his other friends, Synge, William Bruce, a well-known publisher, Abernethy, a Presbyterian minister, and Rundle, Bishop of Derry, Hutcheson sends the MS. of his books; to Arbuckle—his fellow contributor to the *Dublin Journal*—"a little bundle of thread"!

The closing years of Arbuckle's life are devoid of any event of importance. He seems to have been a man cursed by a fatal facility of expression and versatility of talents. A thinker, something of a scholar, a physician, verse-writer, political economist and essayist, yet, with all his gifts, too indolent for sustained effort, unless encouraged by the influence of an older man than himself. He had early lost Molesworth and his philosophical activity ends. Then under the guidance of Swift, he returns to literature and verse, and here again, as the tragic gloom of old age closes round his friend, his work becomes less and less and finally ceases some years before his death which took place either in the last days of 1746 (Hutcheson died in the August of this year) or very early in 1747. Much as one may distrust the eulogy of conventional funeral sermons, there is something that rings true in that preached on 4th January, 1747, in memory of Arbuckle. "His openness," the preacher concludes, "frankness and warm honesty of heart appeared in all his conversation and behaviour. No man could be more distant from professing anything he did not believe, or giving up anything he thought just and right, either from a feeble complaisance to others or from design. . . . The very man appeared to you at once without disguise, and one had always the same character to deal with. . . . His sound understanding and good sense, joined with largeness of heart, and warm affection were excellent qualifications for the sacred offices of friendship, which he discharged with the utmost generosity, steadfastness and fidelity."[1]

Arbuckle's Philosophy.

Owing to Arbuckle's thought clothing itself in, what he himself calls, the "loose and negligent" undress of the Essay, it is by no means easy to find the true starting-point of his theory. He seems to have interwoven his thoughts,

[1] Funeral Sermon, *ut supra*.

and then thrown down a tangled skein from which it is difficult to unravel the guiding thread.

One of several beginnings may be found in the conception of Happiness, "the search for which is the business and study of all mankind, and nothing is of greater importance to us in life".[1] As Butler proved, a few years later, Happiness is not to be understood as the "gratification of our appetites and inclinations,"[2] rather it has three essential elements, "Pleasure," Joy and Tranquillity. The first two of these are different forms of what is called "Delight"—the object of which is Beauty. "Pleasure" is described as the effect of "material and inanimate things" that are beautiful, joy arising similarly from the effect of "living and social beings".[3]

1. *Inanimate Beauty.*—That this pleasure exists and is "natural" or underived is proved by the effect of an appropriate object upon us, which "is easier felt than described". In language anticipatory of Kant's "awe" of the "starry heavens," Arbuckle bursts into raptures over the beauties of nature: "We need only reflect on what we feel when we admire the awful arch of Heaven, either illuminated by one mighty ball of fire, or sow'd with innumerable stars; when we rejoice in the lovely appearance of the morning; when we survey the wonderful face of the great Ocean; or when we gaze on the milder charms of a rural Landskip, blooming fields, solitary shades and still waters".[4] He scornfully asks, is there anything comparable to this in the feelings falsely called pleasures of Sense; and, from the uniformity and importance of the effect, goes on to show that there must be some standard of Natural Beauty. If it be objected that the appreciation of it is not original or "natural," upon the Lockian grounds of want of universality or the phenomena of acquired tastes, he replies that none of the pleasures of sense are universal, and retorts that the loss of the capacity of perceiving Beauty is universally considered to be one of the greatest misfortunes.[5] At the same time, men are

[1] *Hibernicus's Letters*, i., p. 37. *Cf.* Shaftesbury, *Moralists*, part iii., § 3, and Hutcheson, *Inquiry into Original of our Ideas of Beauty and Virtue*, p. ix.

[2] *Hibernicus's Letters*, i., p. 38. *Cf.* Butler's *Sermons*, Preface and Sermon XI.

[3] *Ibid.*, p. 40. It may be remarked that this division gives no place for the delight due to the beauty of animals.

As will be seen Arbuckle uses pleasure in a special sense, in fact he denies that sensual pleasures are pleasures at all, and therefore the only true pleasure is that arising from the recognition of Beauty.

[4] *Ibid.*, i., p. 40.

[5] *Ibid.*, i., pp. 43-4.

singularly inconsistent in that, while they jealously cherish the capacity, they suffer it to be overlaid by lower and fictitious pleasures which, in time, destroy it altogether. Further, while the so-called pleasures of sense are individual and exclusive, the "pleasures" of Beauty are open to all, and in the truest sense universal—negatively because they cannot be monopolised, and positively because they are infinite in number.

2. *The Beauty of Living and Social Beings.*—The joy or "rational delight" due to Personal Beauty is most obvious in the human form (and especially under the influence of what has happily been called Shaftesbury's "Weiber-Cultus"[1] in woman's beauty)—"in man's erect position, his majestic looks and the expressive disposition of his features".[2] In a thoroughly Greek sense[3] he interprets these as indices of a beautiful Soul, for which the body is a flexible mask that takes its shape and form. "When we trace in a man's Person, his countenance, or his behaviour, the Lineaments of an heroic undaunted soul, of a kind and generous temper, or of strong sense and reflexion, we cannot forbear a very sudden approbation and esteem."[4]

Thus personal beauty becomes the symbol of beauty of the soul or moral beauty, and this is described, after Shaftesbury, as being concerned with the social and benevolent affections, though Arbuckle is careful to state that he is not prepared to determine the respective positions of Benevolence and Self-Love. In fact, from his strictly æsthetic point of

[1] Giżycki, *Philosophie Shaftesbury's*, p. 15. Arbuckle gives rather a humorous turn to this idea by saying that "The Ladies, if they would preserve their charms, must, at least, take as much care to adjust their minds as their dress and look into their bosoms as often as their glass" —adding that this might furnish material for an amusing advertisement, "*The only true royal beautifying fluid for the face*"! *Letters*, i., pp. 24-5. This would have given Swift a good example of "bathos".

[2] *Ibid.*, i., p. 49.

[3] Shaftesbury is sometimes called a modern Greek, and that, in the analogy between Virtue and the Arts, he reproduces Plato (Fowler's *Shaftesbury and Hutcheson*, p. 98). The analogy between Plato and Shaftesbury (including his followers) may be pushed too far. Plato was a consummate literary artist, who distrusted his artistic impulses in Philosophy. Shaftesbury and his followers, on the contrary, far from distrusting their artistic impulses, excited them as much as possible, sometimes to the exclusion of reason (*cf.* Mr. Leslie Stephen on Shaftesbury's style, *Fraser's Magazine*, vol. vii., p. 78). Mackintosh (*Dissertation*, p. 108) unconsciously hits off Shaftesbury's reproduction of the Greek spirit by calling it *modern antique*—which is strictly true *but in the sense of the "virtuoso" of the present day.*

[4] *Hibernicus's Letters*, i., p. 21.

view, the beauty of a Benevolent action consists partly in the peculiar manner in which it appeals to the imagination; and partly also in its being an instance of "order, symmetry, and perfection". In fact, in Arbuckle's frequent references to Benevolence, he merely reproduces Shaftesbury unconsciously, and while Benevolence is not essential to Shaftesbury,[1] it is still less so to Arbuckle, since, if morality be no more than the lovely or "comely life," the exact position of Benevolence is of comparatively little importance.

If Arbuckle had continued his philosophical work, one might hazard the guess that Benevolence would have soon lost much of the apparent philosophic importance it possessed for him as a young man of five and twenty; and, as he concentrated his attention more and more upon the beautiful life, he would have been forced to choose whether to make Beauty "natural" and primary and to have established Benevolence, as choiceworthy, *because beautiful*, or, on the contrary, if he had followed out some of the admissions he makes, when dealing with practical needs, he might have adopted Hutcheson's position in representing (moral) Beauty as joy-giving, because arising out of Benevolence. The portions of his *Letters*, where Benevolence is introduced, seem to lack cohesion, as if he were repeating what he had learned, but not digested, unconscious of the logical incongruity of thought.

3. *Tranquillity*.—Naturally Arbuckle dissents from the Stoic theory of "apathy," which, he contends, is not tranquillity, but the extinction of all desire—"a tranquillity which stocks and stones enjoy to the highest perfection".[2] It is strange that, in this connexion, he is quite silent with regard to the Epicurean tranquillity, which, though it differs from his own use of the term, is, at least, much nearer to it than the stoic *ἀπάθεια*, possibly, remembering the popular audience he supposed himself to address, he was deterred by the reproach attached to the term "Epicurean," even so late as the early portion of the last century.

Since the Beauty of objects, human beings and their lives presupposes external objects, Arbuckle strongly condemns the self-sufficingness of the Stoic "wise man," and, after again analysing the temporary nature of "short and unruly gusts of passion"[3] which end in satiety and disgust, and showing the unsatisfying character of certain typical in-

[1] Martineau, *Types of Ethical Theory*, ii., p. 509.

[2] *Hibernicus's Letters, ut supra*, i., p. 216. [3] *Ibid.*, p. 221.

stances of the sensual and physical pleasures of his time,[1] he concludes, by a process of exclusion, that it is only in the delight due to Beauty that tranquillity is to be found, "for all the pleasures of Sense are short and fugitive; grow fainter with age, and duller by repetition; cannot be revived but after some intervals; and must wait the return of appetite, which are (*sic*) not always at any man's call, and seldom at theirs who indulge them most. But the pleasures of Imagination are free from all those inconveniences; and are both of larger extent and longer duration. They comprehend, not only all that is beautiful in Nature, but all that is elegant and curious in Art. Nor are they even confined to objects that have a real existence, but can be raised by intellectual images, and Beings of the Mind's own creation.[2] The material and the moral world are equally the scenes of these refined pleasures; and the mind receives the like amiable ideas of Beauty, Order, Harmony, from the structure and contrivance of both."[3]

Arbuckle's treatment of Tranquillity presents two points of interest. Here, as elsewhere, at times, he is not so optimistic as Shaftesbury, often he writes, not merely in a tone of world-pity, but almost of despair; and, while never doubting the ideal of the "life beautiful," he sometimes seems to lose hope of its practical realisation. "There passes not an age," he writes, "wherein starts not up once or twice some great imperial destroyer, who, to gratify a brutal pride, and insatiable lust of dominion, lays waste whole provinces, countries and nations; invades Nature herself; and the more effectually to drown the cries of the universe, abolishes, perhaps, a whole language in the destruction of those who spoke it. . . . Can the Happiness of Virtue be perfect and entire amidst a scene so filled with disagreeable and shocking events?"[4] His optimism, however, is re-established by the "encouragement he has to look up for a future place of rest," where a higher and unmarred beauty will atone for the imperfections of the present.

In the second place, under the head of Tranquillity, Arbuckle makes some general remarks relative to Con-

[1] *Hibernicus's Letters*, ii., p. 147.

[2] Arbuckle here contradicts his previous assertion that Beauty arises from the appreciation of *External* objects. The reconciliation of these inconsistent statements may be found in the theory of the imaginative dramatisation of the self, which is an eighteenth century approach to the later problem of the sensibility, namely, how the activity of the self can become passive for purposes of perception.

[3] *Ibid.*, ii., pp. 104-5.

[4] *Ibid.*, i., p. 228.

science. The vices of mankind are "infectious to such a degree" that they depress the individual and make him doubtful of his right to his own approbation, yet, upon consideration, the man who has fashioned for himself a thoroughly beautiful life cannot but be conscious of it, for "there issues from Conscience to the mind its own *picture, pure and unspotted*,"[1] and this essentially æsthetic consolation is reinforced by the religious one of man's relation to the moral government of God.[2]

The slightness of Arbuckle's references to Conscience sufficiently differentiates him from Shaftesbury and, especially, from Hutcheson. Nowhere in the *Letters* does the expression "moral sense" occur. In fact, Arbuckle's general point of view is exclusive of a moral sense. With him Beauty, though fundamentally the same, has two species—the one created (as in Nature) and the other creative or productive (as in Art, Literature and Morals). Postponing for the present the discussion of the psychological character of the appreciation of Beauty, Arbuckle's position may be summarised as presenting points of contact with and divergence from that of Shaftesbury and Hutcheson in his earlier works, who held such appreciation to be a reflex feeling. Now, if Arbuckle distinguished his Conscience (in the sense of Hutcheson's moral sense) from the appreciation of the Beautiful in Art, it would become a further reflex act, that is the reflex of an already reflex state.

To Arbuckle, it would appear, man is ethically an artist, whose work is his own life, which he views as he would a picture he had painted, and approves it, according to canons of artistic excellence—to modify an expression of Aristotle's, Virtue is *ἀρετὴ τοῦ ἐν βίῳ καλοῦ κἀγαθοῦ*.

Such an artistic "taste," however, is oppressed by a latent "dialectic". The artist in conduct feels there should be an inevitableness in the sequence of Happiness upon Virtue. Yet "no one virtuous action is its own sufficient reward" . . . and the solution is found by invoking the Deity as a *Deus ex machina*, because, "though Virtue be indeed the direct and natural road to Happiness, yet it frequently fails of actually being so, and, for that reason, stands in need of some superior power to strengthen us in the constant practice of it".[3]

Beauty.—It therefore follows that Beauty, being of the greatest importance to Arbuckle—more so than to Shaftesbury or Hutcheson—deserves a more thorough investigation

[1] *Hibernicus's Letters*, i., 220. [2] *Cf.* Butler, *Analogy*, ch. ii., iii.
[3] *Hibernicus's Letters*, ii., p. 325.

than it had received from the former. The harmonious and symmetrical system of Shaftesbury needs to be both explained and expanded to show how it can apply to both natural and moral Beauty. Hutcheson, by his express division of the Inner sense into an Æsthetic and Moral Sense, is enabled to give a definition applicable, as he thought, to Natural and Artistic Beauty—namely, the presence of "Uniformity amidst variety".[1] Arbuckle rather shelves the question by saying that the "inquiry wherein Beauty properly consists is foreign to the present design".[2] Partly following Shaftesbury,[3] he makes a start from Bacon's reduction of Beauty to three characteristics—Colour, flavour and motion, which he interprets, in personal beauty, as a fine complexion, regularity of feature, "and that *Je ne sçay quoi* which we commonly call a good air".[4] Of these the latter is the most important, as being the play of feature, which is the symbol of "that motion of mind which is necessary to communicate an agreeable motion to the face and spread itself in those thousand nameless graces and amiable dimples that strike the beholder with joy and delight".[5] Thus, in the outer world, Beauty consists of Colour, order or arrangement, and movement, while in the inner world of art and conduct there is an energy which realises in action a product that shows similar or corresponding traces of order in relation to its environment. Elsewhere, Arbuckle seems to incline to the theory of Leibnitz that this order arises out of minute differences, for each of which there is a sufficient reason, and hence the ground of beauty would be a rational appreciation of the harmony of the universe, consisting of a symmetry composed of infinite diversities.[6] This view, however, is mentioned incidentally, and is not developed.

The manner in which Beauty is apprehended.—Arbuckle always uses the greatest reserve in speaking of the way Beauty is appreciated. As already mentioned, he never uses the expression "moral sense" in reference to Shaftesbury's moral beauty, and as a rule the term "sense" occurs very rarely in his work. He frequently speaks of "taste," but rather in a strictly æsthetic signification than as an exact equivalent

[1] *Inquiry Concerning Beauty*, §§ 2-3.

[2] *Hibernicus's Letters*, i., p. 40.

[3] Shaftesbury's *Inquiry Concerning Virtue*, i., part ii., § 3.

[4] *Ibid.*, i., p. 23. [5] *Ibid.*, p. 24.

[6] *Ibid.*, ii., p. 340. It may be noted that Hutcheson (*Inquiry Concerning Beauty*, § 3) instances this theory of Leibnitz as a case of a perversion of the sense of Beauty—what he calls fantastic beauty.

for Shaftesbury's more hedonistic term, "relish". "Taste" is a natural capacity, but susceptible of cultivation, and even requiring it. Here he parts company with Hutcheson, who, sometimes in his earlier works, speaks as if he used the word sense simply as indicating the passive side of the mind.[1] Arbuckle's point of view is different, probably as a poet, he recognises, with regard to works of Art, that any such account of the appreciation of the Beautiful neglects the importance of the creative imagination. Under the fanciful heading of "Castle-building" he vindicates the productive powers of "fancy," for, he thinks, "whatever may be the abuses of a loose fancy in its wild rambles after chimerical pleasure," being a natural faculty, it must have a legitimate use. This consists in drawing up "ideal memoirs of our future actions and success," thereby constructing a romantic *history*, for, after all, what is history "but Castle-building backwards, wherein we amuse ourselves with the fortunes and adventures of other persons as if they were our own?"[2] This exercise of imagination, though common, is productive or creative, and, under due artistic restraint, becomes the work of genius. From this point, Arbuckle starts upon the few hints he gives of his views upon Æsthetics, as such. These are very scattered and tend rather in the direction of literary and artistic criticism than towards the construction of a theory of Art.

The influence of the artistic imagination upon life and conduct is more important. Arbuckle appears to have given Imagination the power of outlining an Ideal of the beautiful life, for which each separate act constitutes the material to be worked up—as it were, the pigments to be successively applied to make the complete "picture".

The application of the productive or artistic imagination to Ethics has an important bearing upon the Psychological character of Arbuckle's theory. While he strongly contends that the basis of the delight in Beauty is "natural," *i.e.*, not wholly the result of education, his theory is more complex than that of Shaftesbury and Hutcheson. The delight derived from Beauty can scarcely be said to be ultimate in as much as it is conditioned by the artistic idea of a beautiful personality, which ideal is consciously present in the mind, prior to the different actions which endeavour to realise it,

[1] *Inquiry Concerning Beauty*, § 6, x. "The internal sense is a passive power of receiving ideas of Beauty from all objects in which there is uniformity amidst variety."

[2] *Hibernicus's Letters*, i., p. 33.

and which must have some voice in the approving of these actions. Thus the delight resulting from each step towards the attainment of this ideal is not merely analogous to (as with Shaftesbury), but practically identical with the artist's pleasure in the progress of his work, and, while this is no doubt a joyful feeling, it is neither unanalysable nor ultimate and therefore can scarcely be described as intuitive—else every workman's satisfaction in work well done would be equally intuitive.

In the case of the proper sphere of the artistic imagination —namely, in Literature and Art—it would appear from the hints in the essay on Castle-building that the faculty works consciously, since it must be watched and its procedure kept within bounds. It is here where Arbuckle of the Shaftesbury writers comes closest to later æsthetic theories, that he misses the importance of the unconscious element in art. Nor need one blame him for lack of insight, when it is remembered that as a verse-writer he was one of the imitators of Pope, amongst whose consciously laboured efforts one looks in vain for outbursts of "fine frenzy".

Finally, with regard to the Beauties of Nature he would also have found a place for Imagination here also, since Nature not only appeals to the natural capacity for appreciating the Beautiful, but rouses the "fancy" to use it for its own purposes—certainly in Arbuckle's own treatment of Natural Beauty, as well as in his frequent use of personification, there is much that is the result of the artistic imagination.

Therefore it would appear that the psychologic order and values are something as follows: Delight arises immediately from the appreciation of Beauty: but Beauty itself (at least in the case of moral and artistic beauty) is the result of the natural capacity for perceiving beauty modified by the artistic imagination and its ideals, and this again is influenced by memory, hope and the effects of education and training.[1] Thus in all cases of joy in the beautiful life, the natural capacity is modified by external training and also by internal faculties. It is to this that life and conduct are presented as an artistic product, the creation of a personality, which, like the "disappearing gun," sinks momentarily out of sight, and then the resulting pleasure partakes of the character of artistic *disinterestedness*.[2]

[1] *Hibernicus's Letters*, ii., p. 324.

[2] Thus Arbuckle's Beauty would have three characteristics of Kant's "Judgments of Taste"—Universality, Necessity and Disinterestedness.

The Modification of Æsthetic Ethics in Relation to the Theory of Government and Political Economy.

Arbuckle's æsthetic morals scarcely bear the strain of the explanation of every-day problems; and yet he is above all things a practical writer. Consequently, when he faces the theory of government and economics, he falls back upon Shaftesbury's Benevolence, which he interprets, as Hutcheson did—though not by the same formula—as "the greatest happiness of the greatest number". With regard to the theory of the State, Arbuckle was a thorough Whig, and he endeavours to show the eudæmonistic results attending the recognition of the liberty of the subject; indeed, he devotes considerable space to arguments in favour of its extension.

As in Moral Philosophy, so in relation to Political Economy, Arbuckle's position is of interest, through extrinsic circumstances. The French Physiocrats have claimed Adam Smith as a disciple, yet it can be shown that Smith received the impetus that resulted in the *Wealth of Nations* from Hutcheson at Glasgow.[1] Now the earliest work of Hutcheson's that contained economical matter was the *System of Moral Philosophy*, which was probably written between 1733 and 1737, though it was not published until 1755. When the close relationship of Hutcheson and Arbuckle at Dublin is remembered, the isolated expressions of the latter upon economical questions, published as early as 1725 (just thirty years before Hutcheson's *System*) in the *Dublin Journal*, are worthy of mention.

It will be remembered that Molesworth—Arbuckle's patron—had been a minister at the Danish Court, and therefore it is not surprising that, in Political Economy, Arbuckle should follow Sir William Temple, who had discharged similar duties in Holland. Like Temple, Arbuckle is an adherent of the mercantile system, though to a less extent, for he had the important advantage of being able to see both sides of the balance of exports and imports through his residence in Ireland, which, he says, is to be looked upon "as a colony of England".[2] Therefore, from the mercantile point of view, he has to show how the balance of trade is to be in favour of Ireland, without prejudice to the prosperity of England. But, while the balance of trade is to consist either of specie, "or what will turn to it in the

[1] *Cf. Life of Adam Smith*, by John Rae, p. 15.

[2] *Hibernicus's Letters*, i., p. 297.

long run," Arbuckle is very far from following the mercantile theorists, either in advocating prohibition or bounties. Considering the date at which he wrote, he speaks with no uncertain voice in favour of Free Trade, contending that " Prohibitions, or high duties amounting to prohibitions, we daily see have no effect ".[1] They lead to extensive smuggling and " the exorbitant gains to be made in such cases work too powerfully upon weak and dishonest minds to hinder them from supplying our luxury at any hazard to themselves and to the ruin of the public ". Even bounties " have not fully answered the ends proposed ". Thus, Arbuckle, while clinging to the mercantile position regarding bullion as wealth, and the consequent fallacy of the balance of trade, is an advocate of Free Trade—at least between England and Ireland. The reconciliation of these two opposing tendencies in his work comes from a combination of the opinions of Swift and Shaftesbury. From the former he learnt to advocate the home-consumption of home manufactures, but he advances beyond what might be called the patriotic Protection of Swift by an ethical principle borrowed from Shaftesbury's optimism. He supposes, without expressly stating it, that most of the goods required in Ireland can, under *natural* conditions, be produced inside the country, and, even under certain circumstances, such production would leave a surplus, which could be profitably exported, and, further, most manufactures can be sold to us more cheaply by the local producer. To bring about a return to such " natural " conditions only requires a recognition of " enlightened self-interest " as opposed to fashionable caprice. Such arguments are strengthened by purely ethical ones, such as appeals to Benevolence and the amount of happiness which would be produced by the increased amount of labour employed. This, according to Arbuckle, is the only true charity.

These views are of interest from two quite different points of view. On the one side, Arbuckle's tentative economical work constitutes a connecting link between the Mercantile School and the Physiocrats, while it is important to note that so long before the publication of the *Wealth of Nations* he initiates the postulate of the coincidence of the individual and general good, as a consequence of " a beneficent natural order "[2]—a doctrine commencing in modern thought with Shaftesbury, and transmitted by Molesworth

[1] *Hibernicus's Letters*, p. 303.

[2] *Cf. A History of Political Economy*, by J. K. Ingram, p. 91.

to Arbuckle and Hutcheson, while from the latter it found its way into the system of Adam Smith. When the popularity of Shaftesbury in France is remembered, it is easy to see how the same principle results in the conclusions of the Physiocrats, under different commercial conditions. In the second place, it is to be noticed that the help Arbuckle receives from Shaftesbury's principle of Benevolence in dealing with the practical needs of his time impairs the consistency of his Æsthetic Ethics. Theoretically, Virtue is the Beautiful life: whereas, in dealing with government and economics, Beauty disappears, and the conclusions are deduced from Shaftesbury's Benevolence.

Arbuckle's Relation to Shaftesbury and Hutcheson.

Shaftesbury's system gives a double equation for Virtue—on the one side as identical with social good, on the other with Beauty. But he fails to establish any connexion between these two synonyms for Virtue. Obviously Beauty is the wider term of the two, but, in as much as he admits that some Benevolent actions are not virtuous (and therefore not beautiful), it is also true that, in some cases, Benevolence must overlap Beauty.

Shaftesbury, like every thinker who has exerted any influence upon the course of philosophical development, had "incomplete" followers, who make apparent his concealed inconsistencies. This may even be seen in Hutcheson's first work, published in the same year (1725) as the first thirty-nine numbers of the *Letters*, in which the two subjects mentioned, Beauty and Benevolence, are isolated, and each is treated in a separate treatise. Shaftesbury himself never seems to have decided whether to make Virtue Beauty or Benevolence; and we find Hutcheson, in his early works, developing the Benevolent aspect, by maintaining that Virtue was Benevolence, and that anything not benevolent is not virtuous.[1] While Arbuckle represents the opposite tendency, holding that Virtue is fundamentally of the same nature as the Beautiful in Art: but, precisely as with Hutcheson, Beauty is isolated from Benevolence, and the latter is reintroduced to explain practical needs.

With both Shaftesbury and Hutcheson, what is called Beauty is rather rational symmetry—to make it æsthetic Beauty or Beauty proper, it wants action or movement and colour, upon which Arbuckle insists. It is thus that we find Hutcheson speaking of the "beauty of theorems," and

[1] *Inquiry Concerning Moral Good and Evil*, § 3.

even, in the first edition of his *Inquiry*, introducing "mathematical calculation" in Ethics, by formulating different ethical states as equations, *e.g.*, the "moment of evil" is $\mu = H \times A$. Where H = Hatred and A the ability of the agent;[1] thereby showing the special and mathematical meaning he gives to Beauty. Therefore, Arbuckle advances upon both Shaftesbury and Hutcheson in so far as he opens a way to a theory of Æsthetics, as such. While he thus advances both upon his master and fellow-disciple, he does not follow his own thought far enough to reach its due reward in anticipating Schiller's æsthetic morals. The plastic Imagination—Arbuckle's "fancy"—hints at the free "play" of artistic and æsthetic activity in which Schiller finds the reconciliation of Kant's duality of sensibility and reason.

Upon the other hand, Arbuckle loses, by the special interpretation of Shaftesbury, all the fruitful germs implied in that side of Shaftesbury's theory which vindicates the right of the Moral Sense to approve of men's tempers and characters, or, in other words, the *inner* side of action. Arbuckle's æsthetic procedure tends more and more to depersonalise action—which, at first, the creative product of a conscious personality, is afterwards projected outward and viewed "as a picture,"—in fact the agent, as far as possible, turns his back upon his own act, and, as it were, trying to forget it is his own, looks upon its *outward* side and meets it as a stranger.

This train of thought suggests at once a contrast and a parallel to the "Impartial Spectator" of Adam Smith, which the agent temporally projects from himself by putting away from himself his own reason and sympathy and retaining *his act*—with Arbuckle, on the contrary, we have an artistic externalisation of the act, while the rest of the personality is retained as before. The divergent methods of both find a unity in an unconscious groping after the rigour of Kant's Categorical Imperative—in Smith's case, by the disinterestedness of the Impartial Spectator; in Arbuckle's by a disinterestedness which is that of the Æsthetic Judgment.

Regarding Arbuckle's relation to Hutcheson, it will already have been seen that Arbuckle's work is the natural complement of Hutcheson's early investigations. Though Hutcheson had much to do with the foundation of the study of

[1] *Inquiry*. First edition, p. 173. It has not been noticed that a similar "moral algebra" occurs in the *Treatise on the Passions* (1728), *e.g.*, $L = C \times G$ (p. 304).

Æsthetics, it is strange how far he was from appreciating the essentials of Art; and even Literature seems to have appealed to him from its linguistic and Philological sides rather than the artistic. It is a strange irony of Philosophy, that Berkeley, whose letters from Italy teem with appreciative references to painting and sculpture, degrades Beauty to the merest utility,[1] while Hutcheson, one of the earliest æsthetical writers, fails to show any deep understanding or sympathy with the Beauty of Art. Little as Arbuckle has written, his isolated expressions show us brief transient glimpses of his entrance into the spirit of Poetry and Art, which would have qualified him to do valuable work had he not deserted Philosophy. As it is, he leaves us a young man's fragment, and when one remembers that the unpromising title of *Sermons* has excluded Butler's ethical work from the majority of the histories of Philosophy, until quite recently, it is little wonder that theories disguised under the title of *Hibernicus's Letters* should have been hitherto unrecognised as containing a missing link of the chain of the British historical development of thought.

[1] *Alciphron*, Dia. 3, § 9. Hutcheson, Addendum to fourth edition of *Inquiry*.

V.—TIME AS RELATED TO CAUSALITY AND TO SPACE.

By Mary Whiton Calkins.

I.—The Phenomenal Category of Necessary Connexion.

Two fundamental errors, one positive and one negative, still contribute to a radical misunderstanding of the nature of time. Metaphysicians insist, as they have insisted for centuries, on treating Time and Space as analogous, and on attributing to the one the characteristics of the other; and, with the same persistence, they overlook the fundamental and far-reaching likeness between Time and Causality.

This paper aims to suggest the proper relations of time to causality and to space, and their common reference to a more ultimate category. Everybody will agree that all three may be regarded as varying sorts of unification of different kinds of multiplicity; causality as a connexion of events, time as a series of moments, and space as a relation of points or positions. This unity is, however, phenomenal, not ultimate; a connexion of facts,[1] that is of relatively separate, artificially isolated portions of reality—qualities, things, events or moments—'accepted' without investigation. This relative separateness and independence, which is an essential characteristic of the phenomenon, makes it a convenient object of scientific observation and classification, but debars it from the claim to ultimate reality, on any monistic hypothesis of an absolute unity underlying all multiplicity. To the idealist, for instance, to whom the universe is fundamentally the vital unity of individual selves within an absolute self, the temporal, spatial or causal relation of phenomena is through and through mechanical, superficial rather than essential; a connexion, relatively extrinsic, of isolated bits of reality regarded as relatively independent.

[1] *Cf.* Bradley's definition of facts, *Appearance and Reality*, p. 317. "Any part of a temporal series . . . can be called an event or fact, for it is taken as a piece. . . ."

Yet however he denies its ultimateness, however strenuously he claims the existence of a deeper unity, monist as well as pluralist acknowledges the subordinate categories of phenomenal reality, that is the unifications of the superficial facts of experience.

Of these forms of what is at least phenomenal unity, two may be clearly distinguished: identity, that is the unity of the 'thing' or 'quality' with itself, in spite of the multiplicity of its temporal moments; and necessary connexion or the unity of the many with each other, that is, the relation, direct or indirect, of every bit of reality with every other, just by virtue of their both forming part of the same world. Such a reduction of the principles of phenomenal unity is suggested to the careful student by an elimination of categories from Kant's elaborate table: for the categories of Quality turn out to be attributes of sense elements, and not in any true sense functions of unity; those of Quantity prove their practical identity with time and space; and the categories of Modality are admitted by Kant himself to stand on quite another footing from the others—being virtually, indeed, mere varying expressions of his insistence upon the greater reality of the sensuous. The true functions of unity are evidently, then, to be sought under the head of 'Relation'; and there, we find, Kant recognises substance or permanence (a modification of identity), Causality or the necessary connexion of the Successive, and Reciprocal Determination, or the necessary connexions of the simultaneous. So Schopenhauer, whose metaphysical doctrine has failed, unhappily, of its rightful influence, because overshadowed by his ethical system,—Schopenhauer, though he overlooks permanence and identity, reduces the categories to one, that of necessary connexion, or, as he names it, *Grund*, of which time, space and causality are subordinate forms. "Alle unsere Vorstellungen," he says, "stehen unter einander in einer gesetzmässigen Verbindung, vermöge welcher nichts für sich Bestehendes und Unabhängiges, auch nichts Einzelnes und Abgerissenes Objekt für uns werden kann. Diese Verbindung ist es, welche der Satz vom Zureichenden Grunde ausdrückt."[1]

To discuss both sorts of phenomenal unity would lead us too far afield. We are more concerned with this last named, so clearly described by Schopenhauer; the necessary relation of all the diverse facts of the universe to each other, a principle of unity manifested in many ways, by the com-

[1] *Vierfache Wurzel des Satzes vom Zureichenden Grunde*, § 16.

bination of qualities in a thing, by the coalescing of feelings in a mood, by the grouping of mathematical quantities in a series, or by the rhythm which binds together notes in a scale. The thesis of this paper is the assertion that Time and Causality are subordinate forms of this principle of the Necessary Connexion of phenomena, and that the third and co-ordinate form of the category is Reciprocal Determination, not, as is often stated, Space.

II.—Time.

(*a*) *The Temporal Manifold.*

The reduction of these categories to the one fundamental principle of necessary connexion is best justified by a more detailed consideration of each one of them, and an investigation of the nature of time becomes therefore our immediate problem. To the question, What is time? the traditional answer is from the outset unsatisfactory, for it enumerates two distinct attributes of time, duration and succession, without giving an inkling of their relation to each other. But at the first glance, these so-called time-relations reveal themselves as directly opposed; the first is a form of unity, the second a kind of multiplicity; and yet duration is in no sense the unity of the successive, but quite a different sort of unity; it is a form of identity which consists in the oneness of one phenomenon with itself rather than that of many phenomena with each other. Duration, or permanence, is identity, regarded in direct comparison with succession and, in fact, measured by succession.[1]

Now if we are to choose between succession and duration as expressions of the real nature of time, there cannot well be any doubt of the decision. Things endure, qualities persist, one experience outlasts several others, but the essence of time is its restlessness, and the nature of time is the multiplicity, the succession, of its moments. The temporal sequence of course implies an enduring permanence, and is known only by contrast with it, but the succession, not the duration, is truly temporal. Everyday reflexion has always, indeed, identified time with succession, and has sharply emphasised its opposition to duration or permanence; the "flight of time," the elusiveness of the moment, the stream

[1] *Cf.* Schopenhauer, *Welt als Wille und Vorstellung*, § 4, p. 11 (8te Auflage): "Das Zugleichsein vieler Zustände aber macht das Wesen der Wirklichkeit aus, denn durch dasselbe wird allererst die Dauer möglich, indem diese nur erkennbar ist an dem Wechsel der mit dem Dauernden zugleich Vorhandenen".

of time, are all expressions of our ordinary consciousness. Nor is there wanting the sanction, sometimes perhaps unwitting, of the great masters in philosophy. "Die Succession," says Schopenhauer,[1] "ist das ganze Wesen der Zeit." "Time in its first appearance," Hume declares,[2] "can never be severed from such a succession of changeable objects." "Time is nothing," is Berkeley's expression,[3] "abstracted from the succession of ideas." The theory is sometimes upheld, even by Kant, though his usual view is that succession is merely one of the modes of time,[4] while occasionally he makes the misleading statement that permanence is the substratum of time, or even identical with time, of which accordingly succession is denied.[5] Before the appearance, however, of the second edition of the *Kritik*, Kant had realised the inaccuracy of such statements, and a manuscript note in his own hand makes the comment: "Hier muss der Beweis so geführt werden dass er nur auf Substanzen als Phenomena aüsserer Sinne passe, folglich aus dem Raum".[6] The suggested correction does not, however, appear in the second edition text of the Analogy, which, on the other hand, even adds the unequivocal sentence, "Die Zeit . . . bleibt und wechselt nicht". But in a new section, introduced in the second edition—the *Allgemeine Anmerkung zum System der Grundsätze*—Kant says definitely, "Der Raum allein bestimmt beharrlich, die Zeit aber, mithin alles was im inneren Sinn ist fliesst beständig".[7]

[1] Schopenhauer, *Welt als Wille, u.s.w.*, i., § 4, p. 9.

[2] *Treatise*, book i., pt. ii., § 3, Green & Grose, ed. i., p. 343.

[3] *Principles of Human Knowledge*, § 98.

[4] "Die drei Modi der Zeit sind Beharrlichkeit, Folge und Zugleichsein." *Kritik der reinen Vernunft*, editions A., p. 177; B., p. 219.

[5] *Op. cit.* A., p. 183, B., p. 226. "Die Beharrlichkeit drückt überhaupt die Zeit aus. Denn der Wechsel trifft die Zeit selbst nicht, sondern nur die Erscheinungen in der Zeit."

[6] *Nachträge*, lxxx.

[7] The truth is that there is hardly any part of Kant's teachings so full of verbal inconsistencies as his doctrine of time. The constant juxtaposition, in successive paragraphs and even sentences, of glaring contradictions like those which have been quoted, amply justifies the critical theory of the *Kritik*, as written bit by bit and carelessly put together. At least three positions are assumed: (1) the theory that time is fundamentally "the permanent," and thus the substratum of succession and co-existence; (2) the theory that permanence is one of the *modi*, attributes or dimensions of time; (3) the theory which contradicts the permanence of time, as in the words, "Das Zugleichsein [ist] nicht ein Modus der Zeit, in welcher keine Theile zugleich sondern alle nach einander sind". *Cf. Reflexionen*, pp. 366, 368 and 373.

The tendency to foist permanence upon the restless nature of time is clearly the result of the misleading habit of making time analogous with space. We of modern times owe much of this misunderstanding to Newton's *Principia*, and one can hardly read the Scholia of Proposition VIII. without realising that this "time absolute, true and mathematical" which "flows regularly (*æqualiter fluit*)" and which is nevertheless credited with duration, that is with permanence, is but the pale abstraction from absolute space which "ever remains like and immovable (*semper manet similare et immobile*)". In the same way, the sections on Time in the *Kritik* owe their obvious weakness to the failure inevitably attending every effort to treat spatial and temporal reality after the same fashion.

If now succession is admitted to constitute the nature of the temporal manifold, it must next be distinguished from other sorts of multiplicity by its characteristic irrevocableness. The moment never returns, the past is gone beyond recall, the present is always a new phenomenon. More closely studied the 'irrevocable event or moment' differs from the 'revivable' thing, in that its manifold lacks the identity which belongs to the latter. The 'moment' is precisely such a phenomenon as has no permanence and will not recur, while the 'position in space' has an identity and thus a permanence and unchangeableness, such that it may be observed again and again. It is for this reason that Kant, as has been shown, in his later discussion treats permanence as a spatial relation, while Schopenhauer repeatedly emphasises [1] the "starre, unveränderliche Beharren des Raums". It will be necessary, later, to widen a little this distinction between irrevocable and revivable, so as to include within the latter class mathematical and musical, as well as spatial, series. At this point of our study we have to differentiate the abstract from the concrete succession, that is, moments from events. The distinction is psychologically an abstraction, since we are never conscious of empty time, but always of past, present and future events, but the abstraction is a justifiable one, and we do mean always, by 'the moment,' the relatively empty unit of a successive manifold, the event in which the object of our attention is not any part of the specific content—colour or sound or emotional tinge—but just the bare fact of its being one of an unrecurring series.

[1] *Welt als Wille, u.s.w.*, i., § 4, p. 11.

(*b*) *The Temporal Unity.*

Up to this point the temporal manifold has been the topic of discussion. But time means more than bare multiplicity, and its moments are regarded not only as many but as unified or connected. This connexion is moreover considered to be 'universal,' that is it is predicated of every possible phenomenon, so that the separateness of the phenomenon is only relative, and just by virtue of being 'event' or 'thing' it is by hypothesis one of a connected multiplicity. And this universality which is attributed to phenomenal connexion follows from another characteristic, its necessity. By the necessity of connexion is meant that the synthesis of the manifold depends on somewhat more fundamental than itself, that is upon the fundamental unity of reality which makes it impossible that any unconnected manifold should exist. This is the sort of necessary connexion, a phenomenal synthesis, founded upon an ultimate unity, which Kant shows by his transcendental deduction of the categories; and the establishment and explanation of this unity form Kant's real answer to Hume. Only a pluralist, therefore, can deny the necessity of phenomenal connexion, and conversely no one who affirms the universality of such a relation can consistently defend the pluralist metaphysics.

The necessary temporal unity is, moreover, of a particular sort. Geometrical magnitudes, for instance, are also of necessity connected, but the relation of one angle to another differs in one marked respect from the relation of one moment to another. The temporal series is not only connected but irreversibly connected, that is, past, present and future must be experienced in the same fixed order. One may turn one's eyes from east to west or from west to east, one may ascend or descend the musical scale, and one may count from 100 to 1 or from 1 to 100, while one cannot live the future before the present. Past, present and future must in truth be defined in terms of the irreversibleness of the necessary connexion. The past is the 'irrevocable' member of a series, on which another member, the present, 'depends'—with which, that is to say, it is irreversibly connected. The present is therefore dependent on the past, and the future on the present, in a sense in which the past is not dependent on the present nor the present on the future; while, on the other hand, mathematical quantities or planets in the solar system, though in a very real sense dependent on each other, yet are mutually determined.

Thus the fundamental distinctions of time are based upon two sorts of necessity: first, the dependence of synthesis in general upon Ultimate Unity, and second, the dependence of the moment upon the preceding moment (which as 'irrevocable' is regarded as peculiarly real).

This now is the essential truth contained in all assertions of the oneness of time; not a unity of one phenomenon with itself, as opposed to multiplicity—the unity of duration—but the unity of the manifold, the related oneness of phenomena necessarily bound together. Schopenhauer states the doctrine unambiguously in his explicit teaching that time is only the "simplest of the forms" of the Law of Sufficient Reason. Schelling means the same by his expression, "Die Zeit hebt das Auseinander auf".[1] Kant also grows gradually to this view of the essential likeness of temporal with causal unity. Only the traditional blunder of co-ordinating space and time, and of assuming that what is true of one is true of the other, seems to prevent his discovering that time belongs among the categories. The permanently valuable part of his theory of time is to be found, therefore, neither in the *Aesthetik*, where the discussion of time follows the outline of the space-doctrine, nor in those passages of the *Analytik* which apply to time, in a matter-of-fact and mechanical way, all the predicates of space, but rather in the Second Analogy and in portions of the First and Third Antinomies, where time is treated as a category by being virtually identified with causality. For by the words,[2] "it is a formal condition of sense perception (*Wahrnehmung*) that the earlier time necessarily determine the later," Kant indicates that necessary connexion, which the essential of causality, is also the fundamental characteristic of time.

Time, therefore, or the irreversible connexion of the irrevocable, relatively abstract manifold, is clearly a form of the category of necessary connexion, and is closely related to causality; the lighting of the fuse is no more 'necessarily connected' with the explosion, than one moment with another. The only distinction is indeed this, that the temporal manifold is made up of moments, whereas the causal manifold is that of events, but the underlying unity is the same in both cases, that of the irreversible connexion of the irrevocable.

[1] *Weltseele*, 3te Aufl., p. xxxv.

[2] *Op. cit.*, A., p. 199; B., p. 244.

(c) *The Psychology of the Time-Consciousness.*

This doctrine of the nature of time, like every philosophical theory, must meet the test of correspondence with admitted facts of consciousness. Now the essential of one's consciousness of time—that which cannot be lacking, if there is to be time-consciousness at all—is the awareness of more-than-one, that is of multiplicity, but of a successive multiplicity distinct from the manifold of the compound or of the extended. When this realisation of multiplicity is absent, when one is absorbed in a topic of thought, or in a circumscribed portion of one's surroundings, then one is lost to the sense of time; but when one wakes up to the fact of change, when one compares this image or object with another, then the consciousness of time reappears. The temporality of the event thus includes its attribute of being one-of-many, and though every moment always is a filled moment, nevertheless one may abstract from its colour or sound or fragrance and attend merely to its temporalness.

Thus psychological introspection verifies the metaphysical doctrine of time as an unconcrete, successive manifold. The emptiness of the time-manifold suggests also an explanation of the length of uneventful periods of time; the fewer the interesting events, the greater our attention to the bare fact of multiplicity as such. Similarly, the observation that uninteresting and habitual contents of consciousness —notably breathings and muscular contractions—form the measure of time-intervals[1] is a case in which the material of consciousness, itself uninteresting, leaves the attention free to direct itself to the fact of succession. "Awareness of change" is thus, as Prof. James says, "the condition on which our perception of time's flow depends."[2]

But introspection reveals also that the time-consciousness is far more than the awareness of unordered multiplicity, and that rather, as Höffding states the truth in his admirable exposition,[3] "inner connexion" as well as "change, transition and alternation" is an element of the time-consciousness. Of this inner connexion, psychological theory has taken little account, and for this reason modern discussions of time are peculiarly futile and inconclusive. 'Past,' 'present' and 'future' are distinctions of the moments according to

[1] This is sometimes incorrectly interpreted as the observation that breathings and movements form the material of the time-consciousness.

[2] *Principles of Psychology*, i., p. 620.

[3] *Outlines of Psychology*, p. 184.

the irreversible nature of their necessary connexion, and must be misunderstood by those who fail to include the realisation of inner relation as a factor of the time-consciousness. When once, however, this truth is firmly held, then it is impossible to dispute about the primariness of either past or present as original time-datum,[1] for it has become evident that one cannot know the past at all, except as related to the present, nor the present unrelated to the past.

The true doctrine of the nature of the psychical present opposes also the theory that duration is an element of the time-consciousness—either "das elementare, nicht weiter reducirbare, Zeiterlebniss,"[2] or one among the elementary attributes of the time-consciousness.[3] For, as these statements suggest, duration is regarded as a temporal element only when it is virtually identified with 'the present'. But the present is a temporal moment, and is therefore to be defined as 'one of a connected succession' which obviously is not the meaning of 'duration'. The awareness of permanence or duration though unquestionably a factor of consciousness is therefore not temporal at all.

This refusal to treat duration as a factor of the time-consciousness is not, of course, a denial that the elements of the consciousness of time, like all phenomena, psychical and physical, may be said to 'have duration'. Not only temporal position but a certain appreciable persistence are involved, by definition, in the phenomenon or fact, whether elemental or concrete. But the 'attribute duration' belongs to the phenomenon from the realistic standpoint of the observing scientist and is not a part of the psychic content at all. The consciousness of temporal position and the consciousness of duration may be added to sensation complexes and so may form parts of psychic contents, but neither is a necessary element.[4]

[1] *Cf.* James, *op. cit.*, i., p. 605, where he seems to make the original time-datum the 'past,' while Strong, *Psychol. Review*, iii., p. 150, identifies it with the 'present' in the words, "The past means that which once was present; and the future that which will be present".

[2] Meumann (paraphrasing Nicholls) *Wundt's Philos. Stud.*, viii., p. 503.

[3] *Cf.* Wundt, Külpe, Titchener, Ward: also Stern, *Zeitschr. f. Psych. u. Phys.*, xiii., p. 332.

[4] This consideration suggests a criticism upon the ordinary procedure of co-ordinating duration with quality, extent and intensity, as attribute of sensation. For duration, as has been shown, is an attribute only from a realistic and reflective point of view, whereas intensity and extent, as well as quality, are sensational in their nature.

Psychology does therefore substantiate our philosophical doctrine by indicating change and inner connexion as elements of the facts of time-consciousness. But another problem remains for psychological theory; how shall the time-consciousness be classified, as sensational or as relational, as direct or as mediate? To answer the question, there is needed, of course, a definition of 'the immediate,' and here we are at once confronted by a variety of meanings. Often the word is used as precise synonym for 'the present' (as realistic attribute of the phenomenon), and from this point of view every fact of consciousness is immediate since, as experienced, it is present. A variation of this meaning makes 'immediateness' equivalent with 'feeling of presentness,' so that immediacy is exactly that which may distinguish the sense percept from the image. Dr. Strong, adopting this use of the word, and following in the wake of every-day realism, is obviously consistent in his refusal to call the consciousness of time 'immediate,' on the ground that it includes a consciousness of past as well as of present. But on this theory of immediacy, it already involves time, and is therefore useless in describing the time-consciousness. Immediateness if it meant no more than 'present' would be a useless distinction, but, as a matter of fact, the word is ordinarily used in a wider sense. 'The immediate' is the fact of consciousness without a history—not the syllogistic conclusion which has been reached by way of ordered steps, nor the complex emotion which has passed through earlier and simpler stages, but the simple experience, the instinctive emotion, the undistinguished feeling of familiarity, or the single sensation. In their exact meaning, therefore, 'immediate' and 'direct' belong to the vocabulary of genetic, as distinguished from purely introspective psychology, for they treat the mental state from the standpoint of the reflective onlooker. On this basis, the consciousness of succession and of inner connexion are palpably 'direct,' just because they are unanalysable elements, for only a compound, whose parts may be traced back to an earlier stage or to a different combination, can be regarded from the genetic standpoint.

The immediacy of the time-consciousness is often denied, because it is said to involve what would be the presence in one moment of a succession of moments.[1] But the existence of a feeling of succession does not imply that a past feeling has revived and added itself to a present one; such a hypothesis is an illicit, associationist attempt to reduce 'feeling

[1] *Cf.* Strong, *op. cit.*, p. 155 *seq.*

of succession' to 'succession of feeling,' and is contradicted by unprejudiced observation, which inevitably finds that the 'feeling of succession' and the 'feeling of inner connexion' are unique, unanalysable minima of consciousness.

The reaction against this unjustifiable attack, from the side of metaphysics, upon the immediacy of the time-consciousness is probably responsible for the tendency to define this in terms of perception or of sensation. Wundt,[1] following Kant, speaks of *Zeitanschauung* and Külpe[2] of *Zeitwahrnehmung;* while references to 'time-sense' or 'time-sensation' may be found in the writings of Mach,[3] of Meumann,[4] of James[5] and of Stern[6] (though James speaks also of the 'perception of time,'[7] while Meumann has lately declared for *Zeitbewusstsein*,[8] and Stern recently proposes *Zeitauffassung*[9]). Too much emphasis must not of course be laid upon the expression 'time-sense,' whose traditional meaning is a very wide one, yet it is not out of place to remark that the complexity of the time-consciousness forbids identifying it with the sensation, which is a psychic element. The time-consciousness as we have seen, is clearly analysable into the two factors, feeling of succession and feeling of connexion, and cannot therefore itself be what Höffding calls it,[10] a psychological ultimate. The percept as well as the sensation, moreover, is distinguished by a certain 'substantive' character, as James puts it, from the more 'transitive' elements of consciousness, like the feelings of identity, of familiarity and of succession. Even Hume recognises this, though he does not see how it upsets all his philosophising, and expresses it very clearly in the words:[11] "the idea of time arises altogether from the manner in which impressions appear to the mind, *without making one of the number*". The essential meaning of the teaching that the time-consciousness is immediate, or even sensational, is however retained in the conclusion that

[1] *Physiologische Psychologie*, 4th Aufl.

[2] *Grundriss der Psychologie*, p. 416.

[3] Quoted by Stern, "Psychische Präsenzzeit," *Zeitschr. f. Psych. u. Phys.*, xiii., p. 327.

[4] "Beitrage zur Psychologie des Zeitsinns," *Philosophische Studien*, vii. and ix.

[5] *Principles of Psychology*, i., p. 605 *seq.* [6] *Op. cit.* [7] *Op. cit.*

[8] *Philosophische Studien*, xii., p. 127.

[9] *Theorie der Veränderungsauffassung*, pp. 3 and 10. *Psychologie der Veränderungsauffassung*, p. 21.

[10] *Op. cit.*, i., p. 243.

[11] *Treatise*, bk. i., part ii., sec. 3, p. 343. Italics mine.

it is made up of unanalysable and immediate factors, feeling of change and feeling of connexion. These, as has been said, correspond exactly with the elements of time, metaphysically considered—with its irrevocable manifoldness and with the universal connexion of its parts, the moments.

IV.—Causality.

The definition of causality as necessary connexion of events, though it opposes at once the every-day belief that one *thing* or object may be the cause of another, is nevertheless in accord with all philosophic thinking since Hume's time at least. Not the match, but the lighting of the match, causes the fire; not the bell, but the motion of its tongue, causes the sound. Another common theory demands notice; the doctrine that causality is a category of merely physical events, not a relation of phenomena of consciousness, feelings and volitions, percepts and images. On this view causality is distinguished from temporal unity, not only by its concreteness, but by the externality of the phenomena which it unites; it is therefore an external, as opposed to time, an internal category. There is no lack of support for this doctrine. Kant's definite argument against Hume, by his distinction between objective and subjective causality, rests upon the assumption that causality is a relation of the external. Schopenhauer says distinctly[1] that causality is "der Regulator der Veränderungen der aüsseren Erfahrung," and indeed he makes matter synonymous with causality: "Ihr Wesen besteht in der Kausalität".[2] Modern thinkers, finally, very generally hold that the only categories of the inner life are those of worth or value, and that causality is a physical principle.

Now it is undoubtedly true that causality is a more important category of the outer than of the inner life, for every natural science supplements observation of facts by investigation of their causal connexion, and only physical causality is capable of exact description and measurement. But these truths prove only that causality is a particularly

[1] *Vierfache Wurzel, u.s.w.*, § 20.

[2] *Welt als Wille, u.s.w.*, i., p. 10; *cf.* i., p. 13, "Materie oder Kausalität, denn beide sind Eines". A slight modification of this doctrine is the definition of matter as "objektiv gewordene Kausalität," and this again is expanded into the theory that matter is simultaneity, a combination of space and time, or "die Wahrnehmbarkeit von Zeit und Raum". Throughout, Schopenhauer's insistence upon the externality of causation is clear.

important and fruitful category of the external world, and not an especially emphasised category of the inner life; they do not in the least disprove that the causal is a possible way of regarding the psychical experience.[1] On the other hand, in so far as the psychical experience is viewed—as unquestionably it may artificially be viewed—as made up of a series of single states—in so far it must be subject not merely to categories of significance, but to phenomenal categories, including those of universal connexion. This view is strengthened by the ordinary doctrine that time is a category of the inner life, and it cannot be disproved by the assertion, even if substantiated, that we actually come to the conception of internal causality through the previous observation of physical causation. So long as mental facts *may* be regarded as necessarily connected, each with each, so long causality is a psychical as well as a physical category. Therefore a hypothetical solitary individual, without consciousness of other finite selves, and hence without consciousness of externality, might think of his consciousness as made up of isolated and independent units. These units would have gained their permanence, probably, through repetition; the necessary connexion would have been suggested by repeated experiences in the same order.

With physical causality, however, that is, with the application of this conception of necessary connexion to events regarded as common experience of all possible subjects, one enters the sphere of the universal and the describable, and there is introduced at once the possibility of verification through experiences which are readily repeated, imitated and communicated. Through such verification the empirical causal propositions arise, the assertions that such and such an event has such and such a cause. This is the sort of doctrine of causality which Hume's criticism really touches, and he is quite correct, of course, in his conclusion that necessity never can be predicated of any observed connexion, and that the persuasion of empirical necessity is an effect of habit. But the assertion of this or that cause has no relation to that fundamental universality of causal connexion expressed in the proposition: "Every event has a

[1] *Cf.* Hume, who, though he usually treats causality as connexion of outer events with each other (or of psychic facts with the 'real objects' which he inconsistently assumes), nevertheless, says distinctly (*Treatise*, bk. i., pt. iii., § 2, end) that the ideas of cause and effect are "derived from the impressions of reflexion, as well as from those of sensation. Passions are connected with one another . . . no less than external bodies are connected together."

cause". For causality is fundamentally, as has been seen, not the connexion of this or that event with another, but the necessary, and therefore universal and irreversible connexion of every event with some other event, its cause. The temporal connexion, that is the necessary relation of one moment with another, has really, therefore, by virtue of its abstraction from the concrete a complete universality which is lacking to any concrete connexion. The irreversibleness of causal synthesis implies, further, another sort of necessity, an unequal relation between cause and effect. The member of a reversible series is equally dependent on every other member of the series, while any term of a succession is specifically dependent on what precedes. This relation of the phenomenal cause to its effect is really what is meant by the 'power' of such a cause.

Still another principle has to be distinguished from the axiom of causality, namely, the proposition: "The same cause always has the same effect". Evidently this principle is of far-reaching use and application in empirical science, forming the basis of all reasoning about the unrecorded past and the untried future, but it is not at all a purely causal principle, since it involves a recognition of identity in the assumption that 'the same cause' will recur, and since identity really is, as has been suggested, a transcendence of the whole standpoint of fact-multiplicity, not a unity 'of the manifold,' but rather a unity 'in spite of multiplicity'.

V.—Reciprocal Determination.

To discuss in detail the unity, reciprocal determination, of the revivable manifold would have led far beyond the limits of a self-respecting philosophical essay. The terms of the relation, concrete things and qualities, and abstract mathematical elements, differ, as has been shown, from events and from moments, by the fact that each possesses a kind of unity which these others lack, identity, and therefore permanence and recurrence. From this follows the feature which distinguishes the connexion of the revivable manifold from that of the irrevocable; a reversibleness or reciprocal relation such that any one of the multiple may be taken as the starting-point.

The reciprocally determined manifold is often treated as if completely equivalent with the spatial; Kant states his third analogy of reciprocal determination, with express reference to substances as co-existing in space;[1] Schopenhauer

[1] *Op. cit.*, A., 211; B., 256.

writes,[1] "Der Raum ist durch und durch nichts anderes als die Möglichkeit der wechselseitigen Bestimmungen seiner Theile durch einander, welche Lage heisst"; and Spencer[2] distinguishes coexistence from succession, in that "whereas the terms of the first can be known in the reverse order with equal vividness, those of the second cannot". Yet it is at once evident that the spatial is, to say the least, not the only form of the permanent and reversible manifold; the notes in a scale and the terms of a numerical series are also reversible but not spatial, for even if one assert the spatial character of sounds, it is surely not by virtue of their space distinctions that the notes are capable of reversal. One is thrown back upon the question: What is the spatial, since, at best, it is only one among the forms of the reversible? Once more, there can be no doubt of the ordinary answer: the spatial is the external, and just as time is a category of the inner, so is space a category of the outer life. But this doctrine accords ill with the common view that not all sense-qualities, but only the visual and the tactual, are spatial. Why should not sounds and odours as well as colours and surfaces have form and location? Or, if one take one's stand with the extreme nativists, like James and Ward, and affirm the spatial character of all sense-qualities, the questions still remain: What of the mathematical reversible? is not that still independent of me and so external to me? The true nature, like the invariable test, of externality, is its superiority to the individual, that is, its universality. The outer world is the world whose lights and sounds and fragrance all men share, while the inner world of my imagination belongs to me alone; the external truth is the object of common conviction, while the illusion is the product of the individual mind; in a word, the external world is the world of society as opposed to the world of the lonely self. This impossibility of limiting the 'external' or 'reciprocally determined' to 'the spatial,' fairly drives us at length to the conclusion which psychology has long held before us, that the spatial means something quite other than the external, and is itself nothing more than a concrete: a sense-quality or a complex of sense elements.

The arguments of the Kantians against the sensuousness of the spatial are not decisive. To urge that Space is recognised as one, in a sense in which 'redness' and 'softness' are not called 'one,' is to overlook the difference between

[1] *Welt als Wille, u.s.w.*, i., p. 109.

[2] *Principles of Psychology*, third ed., part vi., c. 22, vol. ii., p. 275.

Space, clearly a construct of experience, and the elementary extension or spatialness from which this Total Space is built up. The other characteristic marks of the spatial clearly result from its greater generality, that is from the greater variety of its combinations with other sense experiences, for whereas the visual, like the tactual, quality, is always in our experience combined with the extended, this may be combined with either of the two. Thus, also, it is easier to abstract the spatial quality from the complex of sense-experiences, to shake it free from encumbrances, to make it the object of more constant attention. It follows naturally that space distinctions are more delicate and more complex. Finally, the certainty of the geometrical consciousness, on which is founded Kant's Transcendental Deduction of Space, is not to be explained by the ordinary assumption that space-consciousness, because different from sense, must have greater certainty, but on the ground that the spatial as a more constant object of attention is more universally apprehended.

It is interesting to observe that Kant, whose psychology is so often better than his metaphysics, possesses a truer insight into the nature of the spatial than he can force into the moulds of his philosophical preconceptions. With his distorted notion of the ultimate distinction between sense-quality and thought, he cannot include the spatial within the sense-manifold; yet he keenly realises its character of immediateness, and cannot therefore treat space as a category, a principle of thought. Therefore that anomaly, the 'Form of Sense,' the 'sensible' which has no sense-attributes, wins its permanent position in the Kantian hierarchy, because Kant could not blind himself to the sense character of space.

We are not here at all concerned with the specific controversy between nativist and empiricist. Whether the spatial is a combination of motor sense-element with visual or tactual, or whether it is itself a distinct sense-quality, matters little, so one realise what the appeal to the ordinary consciousness of everybody surely shows, that extension is 'sensible,' no less than colour or resistance. The spatial is then no fundamental category, or uniting principle, but itself one variety of the manifold to-be-categorised. This conclusion incidentally explains many of the absurdities of the theories about time. The tendency to treat the two after the same fashion has, as we have seen, long been rife in philosophy, and the efforts to make time, the category, follow the lead of extension, the sense-quality, or of Space, the notion elaborately built up from the sense-element, must

evidently result in hopeless confusion, and in wrong theories of the two.

The summary which follows includes the chief distinctions which this paper has tried to justify. Its first section has been added for the sake of completeness, though it involves the allusion to certain metaphysical principles which have not been discussed.

UNITY AND MULTIPLICITY.

A. I. Ultimate Unity. II. Fundamental Multiplicity.

(Variously stated in different systems.)

(*a*) Idealistic.

The Absolute Self. Individual Selves.
'Ideas' of the Absolute Self.

(*b*) Realistic.

1. Matter or Force, or
2. 'Unknown Reality'.

B. I. The Phenomenal Unity. II. The Phenomenal Multiplicity.

(*a*) Of the many (events or things) with each other; *Necessary Connexion.* (*a*) Events (and moments).

(*b*) Of each of the many (things) with itself: *Identity.* (*b*) Things (and qualities).

The results of the closer study of the phenomenal category of necessary and universal connexion may be grouped together after a similar fashion.

Phenomenal Unity of Necessary Connexion.	Terms of the Connexion.
1. Irreversible.	1. Irrevocable.
(*a*) Causality (concrete).	(*a*) Events.
(*b*) Time (abstract).	(*b*) Moments.
2. Reversible, that is.	2. Revivable.
Reciprocal Determination.	
(*a*) Concrete.	(*a*) External Objects.
(*b*) Abstract.	(*b*) Mathematical quantities.

Such a classification may at least suggest the possibility of a simple and accurate classification of principles often confused and as often falsely distinguished.

VI.—CRITICAL NOTICES.

Lehrbuch der Psychologie. Von Friedrich Jodl, o.ö. Professor der Philosophie an der Universität zu Wien. Stuttgart: Cotta'sche Buchhandlung, 1896. London: Williams & Norgate. Pp. xxiv., 768.

The world is growing a little weary of the multiplication of psychological text-books, and any new candidate for its approval must possess distinctive merits to be tolerated and very marked excellences indeed to be welcomed. The present work lays solid grounds for favour in the thoroughly systematic treatment and well-proportioned disposition of the material; in the comprehensiveness with which it surveys and the abundant learning with which it exhibits the whole field of modern normal psychology; in the equally broad and, in the main, judicious spirit shown in the discussion of critical questions; in the extensive references to the best literature, of which, besides the citations at the proper places, there is an alphabetically arranged catalogue of twenty-nine pages at the end of the volume; in the clear and vigorous style. The book is not specially dominated by any particular *Tendenz*, nor can it lay any special claim to originality; it is not a contribution to knowledge, it will probably not arouse any very lively discussion on account of new and striking views. But if the student desires to become acquainted, under the guidance of a master of exposition, with the most generally accepted body of psychological doctrine at the present time, he will go, if he is wise, to this text-book as, on the whole, the best for this purpose of all the text-books which German scholars have provided in recent years. One feature which strikes the English reader favourably is the frequent reference to the works of English and American psychologists and the adoption of many of the special termini and conceptions which we have become familiar with in our own language, *e.g.*, the conception of the sensation and ideation-continuum and of the extensity of sensations, Stout's definition of apperception, etc. It is impossible to classify the author as belonging to any "school," but as suggesting a direction which he does not follow, his remark may be quoted that "it is the error of all errors in psychology to suppose that mental development is constructed out of the elements discovered by analysis" (p. 177).

The book is divided into two parts, a general and a special. The first consists of three chapters, dealing respectively with the

scope and methods of psychology, the relations of soul and body, and the nature and general analysis of consciousness (pp. 1-166). Psychology is defined as "the natural science of the forms and laws of the normal movement of the phenomena of consciousness". Objection, I think, may rightly be taken to the introduction of the word "normal" in the definition, for while it is, of course, true that normal psychology constitutes the main trunk of the science, it does not constitute the entire psychological tree. The author explains the limitation by saying that psychology is related to psycho-pathology much as descriptive and topographical anatomy is related to pathological anatomy. But pathological anatomy is still a branch of anatomy, and the conception of psycho-pathology is perhaps not quite the same as that of patho-psychology. Greater difficulty confronts us in dealing with the conception "phenomena of consciousness". What are phenomena of consciousness? Are they phenomena we are conscious of? or are they the ways in which we are conscious? Will they include, as Wundt suggests, along with feelings, emotions and volitions, a book, a tree, a stone, provided only we view these latter objects in a certain way, *viz.*, as "immediate experience"? or will they include, not the "whats," but only the "hows"? Or, since it is evident that there can be no consciousness which is not a consciousness of something, will they include the relations of consciousness to its content? I find no clear answer to these questions. On the one hand, we are told that psychology reflects on the phenomena of consciousness, the forms and laws of the play of its processes, regardless of the content represented in these forms (p. 4); on the other, we find more than a fourth of the book occupied with the discussion of sensations, which no one probably would deny to be conscious contents, however else they may be regarded. Similar uncertainty prevails as to whether the process of consciousness is to be viewed anatomically as structure or physiologically as function. The whole question as to the original elements to be distinguished in the process depends on this and on the determination of what it is we are analysing in psychology. I do not particularly complain of Prof. Jodl for not having carefully discussed these questions in the form here presented; obscurity in these matters is the common failing of psychologists. It cannot be said that even yet the field of psychology has been accurately delimited, and that the conceptions in this department—content, function, process, etc.—have been scientifically fixed. But when the phenomena of consciousness are marked off from physical phenomena by the outworn categories of "inner" and "outer" (p. 4), it is time to protest, particularly when "inner" is taken to mean, not merely having reference to a subject, but "absolutely unspatial". How can the phenomena of consciousness be absolutely unspatial when, as we are told, the visual sensation contains space of three dimensions? The various methods of psychology are critically treated with

reference to the aid which each furnishes or may be expected to furnish to the development of the science. Introspection, of course, stands first, its importance being neither too meanly estimated, nor too highly. A prominent place is given among the other methods to experimental hypnotism, which is regarded as far superior to "the occasional and mostly rather monotonous observations of psycho-pathology proper" and as an important adjunct to experimental normal psychology. This estimate rests on the assumption that hypnotism enables us to bring any feeling, idea, etc., at pleasure into the centre of the conscious process and to trace its influence. The subject of hypnotism is referred to in several subsequent passages, always, however, with stern exclusion of any suggestion of mysticism. It is held, for example, that the admission of telepathy would split the very foundations of all our science and lead to a thorough revision of our fundamental conceptions (p. 125). Much aid is also expected from the study of language, but little, on the other hand, from comparative or sociological psychology. As to physiological psychology, the application of this method to the entire realm of psychological experience is held to be at present a scientific Utopia, though the ideal postulate is that we point out for every psychical phenomenon a physiological correlate, and at the same time exhibit the unbroken continuity of the causal series of the neural processes.

The hypothesis implied in this postulate is developed at length in the discussion of the following section on soul and body. The position adopted is that of a thorough-going parallelism in that form of the doctrine which declares that the two series, physiological and psychological, are "two aspects or two different modes of manifestation of one and the same process" (p. 57), "the same content expressed in two different languages" (p. 74). We are surprised to learn that this to us so familiar hypothesis has hitherto found but few friends in Germany (p. 75). Jodl rejects any application of it where the fact of consciousness is not plainly apparent. Many physiological processes have no psychical aspect.

I venture to think that this so popular double-aspect doctrine holds its position to-day by a somewhat uncertain tenure. Only the ambiguity of the facts can account for the diversity of intelligent opinion on the subject. No one probably denies that there is interdependence of some sort between the mental and the bodily series, and the most obvious reading of the facts would seem to make this interdependence mutual. That physiological process influences, *i.e.*, is a condition of the coming to pass of the psychological process, is admitted, and, apart from methodological considerations, no one probably would hesitate to accept the converse proposition that psychological process influences, in the same sense, physiological process. In common parlance, the body affects the mind and the mind affects the body. Such interdependence of process bears but a faint analogy to the dependent varia-

bility of mathematical functions, for in the former case we have to do with determinateness of events, of things that happen. But a conditioned relation of events forms the chief, if not the sole, content of the causal connexion, and it is difficult to see how, on any merely logical grounds, a causal conception, in the sense indicated, between the two terms can be denied to be possible. Cartesian dualism is, of course, not here in question, and the applicability of the ambiguous and, on a certain interpretation, palpably false, scholastic dictum, *causa æquat effectum*, is, to say the least, extremely doubtful. There remain, however, the methodological considerations derived from the principle of the conservation of energy. Prof. Jodl, indeed, regards this principle, in connexion with the law of inertia, as the most consistent and precise expression of the law of causality in natural science (p. 63), and it is on this ground that he denies that there is any causal connexion between the soul and the body (p. 76). But so understanding the causal conception, he must either give up his view of a causal connexion between the terms of the psychical process (p. 74), or else deny that psychology is a natural science. He frankly admits, as all must do, the gaps in our knowledge of the transformation of energy, especially in the nervous system, and allows that if any one chooses to fill these out by assuming that at certain points psychic forces affect the motions of the nervous substance, he cannot be absolutely refuted by facts ; but, he says, one who does this should take heed lest, in place of an imperfection in our knowledge, he substitute a contradiction in our fundamental assumptions. "For if psychic force is to act on a system of material forces, the only way it can do this is by accelerating or retarding motion;" but how this is possible is more difficult to conceive than it is to fill out hypothetically the gaps in the physical continuity of the neural process (p. 63). This is not the place, nor is the present writer competent, to criticise in any detail the principle of the conservation of energy. It is evident, however, as Mr. Bradley has pointed out, that a distinction must be drawn between the principle as a postulate of physical science, in which sphere its utility is undisputed, and as a statement of fact concerning the whole physical universe, as which it as certainly cannot be proved. Moreover, it is obvious to any one who has followed, however superficially, the course of recent discussion, that the modern doctrine of energy, and with it the whole of the modern doctrine of matter, is still in process of being developed. If chemical theory should move along the lines suggested by Ostwald and if, under the influence of speculative physics, the molecular theory of matter, which has so long held sway, should be superseded by a theory of interchanging energies, it would be but a step to the conception of psychical energy and psychical work as correlated, under the law of conservation itself, though more universally conceived than at present, with the other natural forms of energy; and this would lead perhaps to the

realisation of Huxley's dream of a mechanical equivalent for consciousness, just as we now have a mechanical equivalent for heat. But however this may be, it seems premature, and it is certainly useless, to attempt to bind psychological science to a particular theory of the relation of soul and body. No better proof of this could be found than that which Prof. Jodl himself furnishes. I do not refer to the frequency with which his language contradicts, if literally taken, his hypothesis; that he explains as accommodation to popular and recognised modes of speech. Nor do I refer especially to his positive and eloquent insistence, as over against an "exaggerated naturalism" that the conscious will is "not merely a product in the world, but a factor," "a force among other forces," influencing reality and not to be eliminated from human evolution—language which can hardly be interpreted as accommodation merely, and which it is quite impossible to reconcile with the criticism of similar views on the part of Prof. James (p. 62) or with the terms of the doctrine here under discussion. I refer to the fact that Prof. Jodl nowhere makes any special use of the hypothesis either for the purposes of his psychological analysis or for the establishment of anything like a psychological law. Even he avails himself, on occasion, of the convenient hypothesis of the "psychical disposition," though carefully explaining, what is really nonsense, that the disposition "really" exists only as a physiological disposition in the structure of the nervous substance. In the end, therefore, his insistence that even the highest achievements of our conscious intelligence are —not merely correlated with, but *are*—when viewed objectively, nothing but mechanical processes of release and redistribution of nervous energy in the brain (p. 119), may either be of profound speculative significance or may merely express a pious scientific conviction; it certainly does not serve to make the course of psychical events any the more intelligible.

The fundamental relation of consciousness is taken to be the opposition and mediation of subject and object. This is analysed into three moments, representing respectively the action from without inwards, the reaction from within outwards and an inner mediation between the two. These moments appear in the mutually implicated forms and modes of the primary psychical reaction as sensation, feeling and conation. This division is then crossed by another, having regard to the different stages of mental development. The basis of the latter is the fact that along with the flow or undulation in which the contents of consciousness arise only to disappear, there is a summation of their effects: retained in some manner as dispositions, they reappear in new forms and in their mutual influence on one another and on the primary processes give rise to the manifold modes of the developing conscious life. The division from this point of view is into primary, secondary and tertiary phenomena, corresponding somewhat to the more familiar division, presentative, representative and reflective, but not referring, as

these terms appear to do, exclusively to intellectual development. The distinction between primary and secondary cannot be scientifically defined; it can only be experienced. The term which best designates the secondary phenomenon is "Vorstellung". Anything which we have ever once been conscious of can be afterwards reproduced. "The reproduction of feelings is an indubitable fact of the mental life." Representations of feelings, however, are not feelings, nor are memories of volitions acts of will. Feelings and acts of will are primary phenomena at whatever stage of development they occur. The "tertiary" phenomena are distinguished from the secondary as fusions and condensations of primary and secondary elements to new and unique formations. In this highest class are included the phenomena of thought and of the constructive imagination. An extremely vivid impression of the extraordinarily complicated life which psychology undertakes to exploit is conveyed by the thirty odd pages or so devoted to the elucidation of these distinctions and to the exhibition of the rich interdependence of the elements and processes as they present themselves in the diverse stages of mental development.

The divisions thus drawn suggest the scheme for the distribution of the material in the second "special" part. Two chapters on sensation and sensations are followed by two on the affective and volitional phenomena of the primary stage, and these by two on the secondary phenomena of reproduction and on the most important products of the reproductive process, time, space and the distinction between the ego and its states and the external world of objects; then comes a chapter on language and thought, followed by two concluding chapters treating respectively of the feelings and of the volitional phenomena of the secondary and tertiary stages.

The chapters on sensation and sensations, filling more than 200 pages, bear witness to the relatively advanced state of our knowledge in this department, of which they afford an admirably clear and an unusually complete conspectus, combined with a judicious handling of the most interesting and important matters of controversy. Original investigators may find ground for complaint in the omission of this topic or that which they may deem important and in the failure to notice some latest monograph; the impartial critic will rather praise the author's learning, the rare good judgment shown in the selection of the matters most essential and the masterly manner of presentation. The general student will nowhere find the mass of material which in this department has been so rapidly accumulating in recent years better disposed to his service. It is unnecessary, nor is there here space, to go into details; I will only refer especially to two points, and first, to the excellent discussion of psychophysical measurements. The technical questions concerning the methods of investigation, of fundamental interest for the experimentalist, are, to be sure, not entered upon; the author contents himself with a more summary exhibition of aims,

methods and results. On the other hand, the questions of principle are very carefully treated with critically cautious appreciation of the conflicting opinions. No final conclusion is reached, but incidentally there is some effective criticism of the view which denies the possibility of any measurement of the intensities of sensations on the ground that sensations are not multiples, as also of Wundt's interpretation of the psychophysical law as merely a special case of the law of the relativity of apperception. The other point is the acceptance of "extensity" as a characteristic of sensations and the vigorous advocacy, in the elaborate treatment of the visual sensations, of the essentially intuitive character of our space perceptions as against those who regard them as an association or fusion of optical with other sensations, or as a product of the mingling of sensations proper with unconscious inference. The third dimension is included with the others in the original sense-datum. Indeed, the author goes so far as to assert that our most primitive visual sensations are spatially arranged (*räumlich geordnet*, p. 553) and that we have a sensation of our eye as the point to which all the perspective lines and surfaces that run out into the third dimension from the place we happen to be in converge (p. 341). These statements could hardly be supported by facts, nor are they demanded by the exigencies of theory. The original extensity of the visual sensations should be by all analogy a latent or merged plurality out of which the space relations proper are developed on the basis of many co-operating experiences, not tridimensional space, as such. The implication of the third dimension in the primitive visual sensation is argued for, however, as a matter of principle, on the ground of the original opposition in consciousness of subject and object, and the original excentric projection of sensations: functions, it is claimed, which cannot be learned, though they may be perfected and developed. If now, it is argued, the optical impression is necessarily externalised, then there can never possibly be any moment when the ego and the visual surface so to say coincide, and a reference to depth, however imperfect, must lie in our most primitive optical experience. This law of excentric projection is referred to again in the chapter on the ego and the external world as a refutation, on psychological grounds, of subjective idealism. But if, as is also claimed, these functions are the result of a long process of evolution adapting inner to outer relations, then again, on the general analogy of ontogenetic development, we should expect that the human infant would go through a process, though, to be sure, a relatively rapid process of acquiring them, and in that case doubt would be thrown on the original experience, whatever analysis may detect in that which comes later. But into this later experience enter the residua of past processes, and in regard to the excentric projection of sensations especially, whether interpreted as externalisation or as bodily localisation, there is good reason for believing that, however the disposition may be preformed in the inherited constitution, its

actual development demands a good deal of assistance from individual experiences of the most manifold character. So that in the end we might even admit a primitive but undifferentiated voluminousness in the optical sensations, and yet hold that all consciousness of spatial differences, and particularly the excentric projection of sensations, was a function of other contents gradually assimilating to themselves the visual sensations and not primitive at all.

The affective phenomena are treated as at the primary stage sense-feelings and elementary æsthetic feelings; at the second and third stages there is a classificatory division into formal and personal feelings, a section on the dynamics of the secondary feelings and a further section on the complex æsthetic and ethical feelings. The fundamental feeling elements at all stages are said to be the two opposed qualities of pleasure and pain; complications of these with other elements in various modes make up the concrete life of the feelings. Pleasures and pains differ respectively only in intensity; qualitative differences are derived from the elements which they accompany. The real reason assigned for distinguishing the feeling elements from the sensations is that the former can never in any way be made objective. Just how this statement is to be reconciled with the doctrine referred to above, that feelings can be remembered, is not made clear. A distinction is drawn between *Gefühlsvorstellung* and *Vorstellungsgefühl;* but in the memory of a feeling either the feeling is actually reproduced, in which case it is by definition a *Vorstellungsgefühl*, or it is not, in which case it is not easy to see how it can be represented. Strange to say, the author makes no distinction between *Unlust* and *Schmerz*, regarding even cutaneous pain as a purely affective phenomenon and not considering the many reasons for the opposite view. The law of feeling is deduced from a consideration of the relation of stimulus to capacity: there exists for each sensitive organ and for the organism as a whole a condition of equilibrium relative to the incoming stimuli, and this equilibrium is of such a sort that any departure from the mean whether towards the plus or towards the minus of intensity and extensity of stimulus, is felt as disagreeable, while a return towards the mean is felt as agreeable. Neither the view of Wundt nor that of Horwicz regarding the relation of the threshold of sensation to the threshold of feeling agrees with the facts. In the section on the dynamics of the secondary feelings, there is a criticism of the James-Lange theory which is singularly ineffective. Its ineffectiveness results from the failure to make any attempt to exhibit the structure of the emotional process as a whole or to grasp the unity of its function. It amounts practically merely to saying that the "Affect" is not the reflex in consciousness of the bodily resonance because it is a certain state of intensive feeling accompanied by these bodily reflexes. The real questions, of course, are, into what besides sensations, ideas and feelings of pleasure and pain can the emotional state be analysed, and what explanation, apart from that of an instinctive reaction, can be given

of the relation which, in this state, these elements bear to each other. The essence of the "physiological" theory is to find no elements in the analysis but those mentioned, and no explanation of their combination but the instinctive reaction on whatever may serve as the stimulus. So understood the theory loses much of its paradoxical character; unfortunately, though referring to James' later statement, Prof. Jodl seems only acquainted with the earlier and cruder formulation and not to have followed closely the later course of the discussion. The best part of the treatment of the affective phenomena, and one of the best parts of the book, is that which deals with the æsthetic feelings. There is nothing striking or original in the views presented; they are those probably the most widely current, or at least the best accredited; but the lines are drawn with clearness and precision and the whole discussion is itself a work of art calculated to produce as much conviction as pleasure.

Perhaps the least satisfactory part of the book is that which treats of the will. There are a good many psychologists to-day who deny that will is an elementary process in consciousness at all, and it would have been well, no doubt, if their views had received more careful consideration, particularly as they can fasten on the admission that to a more exact observation conation appears as a sum of minute motor impulses, which they can then plausibly proceed to resolve into a sum of actual or reproduced motor or other sensations. I think myself that a sufficient answer to this objection is to say that the phenomena are here viewed from the point of view of function, that the attitude expressed in conation is unique, and that it is elementary in so far as it seems to be a necessary aspect of all conscious process regarded as not merely passive, but as reactive, adaptive and spontaneous. All this is implied, I think, in what is here said of it. But the analysis of a function consists in the enumeration of all the conditions of its exercise, just as the analysis of the causal relation consists in the enumeration of all the circumstances essential to the event; and I do not find that the analysis here given shows sufficient appreciation of the complexity of the problem. There is no adequate discrimination of the different types of function that are referred to under the term "will," nor is there any clear exhibition of the continuity in the development of volition or of its connexion with the developing content of self-consciousness. For anything that is expressly stated, self-consciousness might not be implicated in the process at all. In the discussion of the higher forms of volition, the emphasis, one might almost say the sole emphasis, is laid on the motivation of the will in feeling. This is, of course, in general, correct; unless the object thought made some appeal to action, it is impossible to see how it could ever become acted on. But in what lies this appeal, the felt value which moves the will? Ultimately, we are told, in qualities of pleasure and pain, and as these qualities have only intensive value, the sole measure

of value in motivation is quantitative. We are thus in all cases of conflict of motive thrown back on the hedonic calculus (p. 726). This theory of value seems to me utterly false to the facts, and I cannot but think that if will had been treated as a function of the developing self-consciousness, the result would have been different. For it would then have appeared, I believe, that at no period of the development can we separate the function from the content apperceived and felt as a whole, and that, as we progressively advance from actions involving the brute sanction of impulse to those in which the sanction of desire is prominent, and thence to actions implicating the moral consciousness, we do find in the contents themselves new elements of value, felt as such, which in the end completely overshadow in importance as springs of action the mere feelings of pleasure and pain.

One or two errors may be noted for correction in a second edition: 16,000 as the lower limit of audible vibrations, pp. 184 and 357 (correctly given p. 299); E. *A.* Weber p. 244; the statement p. 131 that the English word "sentiment" corresponds to the "Gefühlston" of the Herbartians. The value of the book would furthermore be greatly enhanced by a proper index.

H. N. GARDINER.

Les Éléments du Caractère et leurs Lois de Combinaison. Par PAULIN MALAPERT. Paris: Félix Alcan, 1897. Pp. xvi., 302.

I THINK that those who compare this important work with the recent French attempts that have preceded it in the same subject, will allow that it marks a considerable advance. It combines much that was valuable in these attempts, escapes some of their premature generalisations, and shows a more cautious attitude than they always exhibited. It has had the great advantage of following and not preceding them. And it was natural that they, pioneers in a new and most complicated subject, should not all at once succeed in raising it from the bed of popular opinion.

The problem of Ethology has received substantially the same interpretation in all the recent works. It is at least to discern, to interpret and to classify the fundamental types of human character. But popular thought has pressed hard on the struggling scientific intelligence; and if we were asked what, at the present time, is the immediate concern of the new study, we should answer that, whether consciously or not, it is striving to reduce to a scientific form two disconnected classifications of character which it has inherited from popular thought. One is the famous doctrine of the four temperaments, once a learned, now a popular conception. The other is the threefold classification—men of thought, men of action, men of feeling. The literary man no more than "the man in the street" knows what relation the first of these classifi-

cations bears to the second. The first is called a classification of temperaments not of character; that is enough for him: and he applies a type of the one or of the other, as it suits his purpose. Thus he obtains some central conception, however abstract, of an individual character; and if the present inquiry of psychologists meets with any measure of success, one of its fruits will be to furnish, in place of incomplete and disconnected classifications, a single one more coherent and exhaustive.

But the struggle of Ethology with popular thought is not only shown in the attempt to reach a single and complete classification but also in the endeavour to interpret its several types. For instance, if it is a type of the second classification, 'the man of action,' it is an abstract quality. We are given this quality as a leading characteristic, and in some sense we are supposed to understand that it is predominant, but we are not told what are the secondary characteristics of the type. Here it is the business of psychology to deduce these secondary characteristics. If, on the other hand, we take one of the types of the four temperaments, for instance the sanguine type, and disregard its antiquated physiology, here we are not given a single abstract quality as predominant, but several of indeterminate standing. Some of these qualities are found in most accounts, and we may assume them to be those which long and repeated observations have found to coexist. Thus we find it stated that the sanguine man shows quickness of feeling and thought, but is superficial and inconstant, a lover of pleasure and very hopeful, and in his will wanting in firmness and self-control. Here in distinction from the last case as we are given no leading characteristic it is the business of psychology to discover it. For where a group of qualities is constantly united in both sexes, in different races and remarked at long intervals of time, they must possess some inner bond of connexion. It is the business of psychology to discover this connexion.

With this conception of the immediate problem of Ethology, let us see how M. Malapert deals with these qualities, how he interprets their connexion and how far he succeeds in combining the classifications of popular thought. What is his method? His method is to take the three universal functions of mind,—Feeling, Thought and Conation (*activité*),—to discover the fundamental varieties of each and afterwards to consider their interrelation. In "a given individual," he tells us, "feeling, activity and intelligence react upon one another, so that the particular form of one is closely connected with the particular form of the others. . . ."[1] It is perhaps strange to be told that feeling, thought *and* activity react, when mental activity presumably consists in this interaction. But the relation of activity to thought and feeling is so obscurely presented and little understood in general psychology that it is inevitably reflected in the applied science and injures its classifications.

[1] P. 126.

And here it is as well to remark that the popular types of the active man, the man of thought and the man of feeling, have been rather hastily assumed to coincide with a "predominance" of one of the universal constituents or functions. This assumption is not peculiar to M. Malapert; it is common to most of his predecessors. It is assumed by no less an authority than Bain. But what is ordinarily meant by the active man is one who *in comparison with other men* discovers an unusual degree of physical activity. There is no statement of the relation of his activity to other constituents in himself. In the second place, psychical activity, as understood by psychologists to mean a universal mental function, is revealed as much in thought, emotion and will as in muscular action; and supposing that this activity were "predominant" in a given individual, it would not follow that he would be—in the popular sense—an 'active' man, or a 'man of action'.

As to the use of this term "predominance" in ethology, I have, in previous reviews, referred to its vagueness. No term is more prominent in the French and English works on the theory of character. It is sufficiently intelligible as applied in the popular use to signify the superior force of one emotion or sentiment over other emotions and sentiments in the same individual. But no one has thought it worth while to inquire what just, precise and uniform meaning can be attached to the predominance of one of the universal mental constituents over the rest. These constituents at least have no resemblance to individual units that act externally on one another. And if we take one of the metaphors by which psychologists have endeavoured to express their mutual implication, how can one "aspect" of a mental fact be predominant over its other aspects? Is there any intelligible meaning to the predominance of thought over activity, when in order to be predominant thought must be itself activity?

But M. Malapert, while he bases his classification ostensibly on this predominance, yet, by the cautious way in which he interprets the principle and his detailed study of concrete types, escapes much of the confusion that would seem to follow from it in practice. Thus in reference to one of his predecessors, M. Fouillée, he protests against treating the subject as pure logicians; and we may commend his wisdom in inquiring, not as to any general predominance, but "what kind of intelligence or activity coincides with a given character of feeling".[1] "To say with M. Fouillée that there exist people endowed with *much* feeling and at the same time with *much* intelligence and with *little* will; others, on the contrary, with *much* feeling, *little* intelligence and with *much* will . . . is to employ words that have little precision of meaning, and even to miss the real question. Without any doubt a man who is very susceptible to emotion may have a *highly developed* intelligence, but it will differ unmistakably both in its character

[1] P. 126.

and direction from the highly developed intelligence of which an apathetic man is capable. The biologist does not ask whether a *respiratory system* is accompanied by a *circulatory system*, but what determinate form of the one is united to a given determinate form of the other. In the same way the psychologist should consider what determinate form of activity or intelligence coincides with a given determinate form of feeling." [1]

I think that if M. Malapert had followed out his own excellent advice, he would have substituted for the conception of a quantitative relation between the inseparable mental constituents the conception of a qualitative relation, and his work would have gained in accuracy and clearness.

In the types of 'temperament,' on the other hand, a quantitative relation must be assumed. M. Malapert treats them as modes of Feeling (*sensibilité*), and he includes in the meaning of this term not merely states of pleasure and pain (*états affectifs*), but also—what we should call conation—impulses and desires (*tendances affectives*).[2] His four types of feeling—*les apathiques, les sensitifs, les émotifs, les passionnés*—correspond closely to the characters commonly ascribed to the phlegmatic, sanguine, nervous and bilious temperaments. How then does he interpret the connexion of qualities of each of these types; what does he regard as the central or primary quality of each? Let us commence with the apathetic. As the name implies people of this type are capable of little feeling, and we should take this as their central quality. They are commonly contrasted with the emotional. The one, says our author, "resist all stimuli, remain indifferent, impassible. . . . At the opposite extreme are those who feel all emotions with an astonishing intensity." [3] Let us then suppose that the central quality of the apathetic is the absence, that of the emotional the presence, of intense feeling. But another quality is implied and seems to possess an equal importance. We cannot refer to the emotional without suggesting the quickness of their reaction. It seems to be a law, says our author, that "quickness and intensity are united: the nervous instability of the subject being the common cause of these two harmonious results".[4] The cases of hyperæsthesia, where the intensity of feeling is extreme, are those where "it is most sudden and instantaneous".[5] But the apathetic are so slow to feel, that sometimes their emotions affect them only in retrospection.[6] It is one of the interesting points in our author's method to give salience to these types by instancing their morbid developments. Thus in chorea and in the stupor of epilepsy, we have an extreme example of the apathetic type—a general depression of feeling and the tendency to movement. These patients are indifferent to everything—"persons, dangers, threats and promises".[7] In other nervous diseases, as

[1] P. 127. [2] P. 26. [3] P. 29. [4] P. 31.
[5] *Ibid.* [6] P. 30. [7] P. 170.

hysteria and neurasthenia, we have extreme examples of the emotional type—a disposition "to feel emotions whose violence, frequency and persistence are out of all proportion to their causes" [1] This reference to the persistence of feeling introduces us to a new quality of the emotional type which M. Malapert regards as essential to it. And here he but follows the general account in which the persistency of emotion is emphasised quite as much as its intensity. In one place he seems to derive the intensity from the persistence. The prolongation of feeling he thinks enables it to "excite sympathetically a more or less considerable mass of other states of feeling . . .".[2] As a result, the feeling "acquires a greater intensity".[3] It is in respect of its great persistency of feeling that the melancholic or emotional type contrasts with the sanguine. The sanguine is always described as superficial. In the sanguine too we have a combination of qualities —quickness of feeling and instability (*sensibilité vive mais assez passagère*). From these opposite qualities of the emotional and sanguine types, our author deduces the melancholy of the one and the habitual cheerfulness of the other. The light inconstant nature of the sanguine "protects him against violent grief and prolonged dejection".[4] He is a "born optimist": [5] his opposite a born pessimist.

Let us now take the qualities of intellect, conation and will which our author deduces from these innate qualities of emotional disposition. In respect of the sanguine (*les sensitifs*) "all degrees of intelligence are possible, but not all forms".[6] In this type there is always "a giddiness (*étourderie*) and want of reflexion; their multiplicity of sensations, and points of view, their mobility, counteract prolonged thought and sustained application . . .".[7] Hence too their will is "unstable and capricious"; inhibitory or "negative volition is more or less completely absent".[8]

What on the other hand are the effects of the disposition to intense and persistent emotion? It has been remarked by Bain, Wundt and Féré, says our author, that this disposition is accompanied by an "overactive memory".[9] But the memory is partial; it is led to neglect all that has not "an emotional value," [10] "logical and properly intellectual relations are at every moment modified by emotion". On the other hand this disposition tends to produce "a development of imagination". The images are coloured with emotion and in their turn tend to "maintain and renew emotion".[11] And where this disposition is united to a high quality of intelligence it becomes "the intellectual temperament of the artist".

But all emotions are not of the same character. Two varieties are referred to,—the stimulating and depressing,—and according

[1] P. 28. [2] P. 33. [3] *Ibid.* [4] P. 37. [5] *Ibid.* [6] P. 140.
[7] *Ibid.* [8] P. 173. [9] P. 143. [10] *Ibid.* [11] *Ibid.*

as one or the other is predominant, so is the effect different. The depressing emotions slow the reaction time: the stimulating accelerate it. And thus we have two sub-types of the emotional character—the melancholy and the irritable (*emotif-melancholique, emotif-irritable*).[1] It is one of M. Malapert's merits to escape, as he progresses in his work, from mere generalities and grapple with the perplexing detail of his subject. But he sometimes enables us to correct his own premisses. Thus we had been led to suppose that the melancholy of the emotional type was the result of its intense emotions; but we now see that it is the result rather of their painful and depressing quality. And the quickness too which we had supposed to be combined with intensity is not combined with it when the emotions are of a depressing character. The intensely irritable, on the contrary, if quick and intense of feeling, show no disposition to persistent melancholy. They are always quivering with emotion, palpitating with anxiety or hope, passing suddenly from enthusiasm to discouragement, from the most expansive gaiety to the gloomiest melancholy.[2] It must be admitted that in this sub-type we have departed far from the emotional character first described. Its essential quality, its persistency of feeling, is no longer present. Instead we have a type so unstable, and capricious that it seems to pass over into the opposite type of the sanguine. This illustrates the difficulty of fixing the primary qualities of each type. Even the sanguine man, so uniformly unstable, has at least one emotion that contradicts this general rule. According to all account she is persistent in hope—a born optimist; and this emotion renders him phlegmatic to its opposite.

The ancient types of the Phlegmatic, the Sanguine and Nervous are sufficiently coherent, even in the popular description, to tempt the psychologist to their reconstruction. But the Bilious presents unusual difficulties. The different qualities of emotional disposition, the quickness or slowness, the superficiality or persistence, the faintness or intensity of feeling have already been exhausted in the description of the preceding types. The phlegmatic are slow and obtuse, the sanguine quick and superficial, the nervous intense and persistent. To these pairs, a third quality is united. The phlegmatic are, like the nervous, persistent, so far as any feeling is elicited, the sanguine show considerable intensity and the nervous are, like the sanguine, quick. What qualities of emotional disposition or what combination of them are left to us to differentiate the bilious or passionate type? In the common accounts, it approximates to the man of action. The Napoleons and Cæsars are said to belong to it. But M. Malapert regards the man of action as a distinctive type, nor does he place the passionate under it, but under the co-ordinate class of feeling. Hence it would seem to be difficult for him to give any

[1] Pp. 223, 226. [2] P. 226.

coherent and distinctive account of them. Like the sanguine, he regards them as quick of feeling (*sensibilité très vive encore*). But he cannot define them by such qualities. He reverts to his distinction between states of feeling (*états affectifs*) and tendencies of feeling (*tendances affectives*). The susceptibility to intense emotion, he assures us, "is not necessarily united to the impetuosity of passion . . . ".[1] We can therefore distinguish the bilious type by the intensity or passion of its desires.

We should have expected that M. Malapert would not have co-ordinated this type with the three with which it is popularly presented, that he would have classed it, not as a type of feeling, but of conation (*activité*), had he not already included conation in feeling (*sensibilité*). What intelligible and consistent account can he give of conation as itself a fundamental function determining a generic type of character. But admitting his principles how can he succeed in distinguishing this type by the intensity or passion of its desire from those which have preceded it? Desire depends on feeling and this is his difficulty. As are the feelings of the preceding types, so are their desires. If it is difficult to arouse feeling in the apathetic, it is difficult to stimulate desire. If the sanguine are quick and superficial of feeling, so are their desires lively but inconstant. If the emotional have intense and lasting emotions, the same qualities pass into their desires. "It seems indeed," he admits, "that weakness of desire is linked and correlated to a kind of torpor of feeling. . . . True apathy is then both feebleness of desire and feebleness of feeling. However, it sometimes happens that apathy is combined with intense desire; which may arise from two principal causes. Sometimes the tendencies though having a certain force are deficient in feeling, I mean they are not readily excited; their characteristic manner is calm, . . . but if a strong impression is produced, it may persist and after a period of incubation produce fiery and impetuous impulses."[2] Yes; if intense emotion is at length produced, the desire also will be intense. But under these conditions, the apathetic type is confounded with the passionate, if intense desire is the distinguishing quality of the latter. On the other hand, if we emphasise in the passionate, the quickness of its desires, how are we to distinguish it from the sanguine? Have not the sanguine quick and explosive desires, intense but unstable? It is in childhood, we are often told, that the sanguine type is most purely represented and in which these characters are most conspicuous. But our author distinguishes two chief varieties of the passionate, those of unstable, those of persistent desire (*passionnés instables; passionnés unifiés*);[3] and if the former dissolve in the sanguine, how shall we distinguish the latter from the nervous? Have these troubled natures no desires corresponding to their intense and prolonged emotions?

[1] P. 42. [2] *Ibid.* [3] *Ibid.*

In their griefs have they no passionate longing? Have their morbid fears no desire to escape from real or imaginary dangers? Has their regret no vain yearning? Does a brooding anger that "nurses" its wrath cherish no schemes of revenge? But, says our author, "the religious sentiment of a Fénelon differs strangely from the mystic impetuosity of a Sainte Therèse, the sensibility of a Racine or even a Diderot from the insatiable charity of a Saint Vincent de Paul. In short two natures dominated by an extreme liveliness of feeling are profoundly distinguished where one is in addition characterised by violent desire (*ardeur*)." The emotion of the one is "inward, disturbed and suffering. The second more vigorous, loving or hating without measure, always eager to escape from themselves with a need, constantly renewed, of satisfying their passions." [1] That M. Malapert is vividly portraying real types may be admitted; but the second does not correspond with what we had taken to be the essential characteristic of the passionate. Intense desire is common to both types. But there are desires which, however noble, are impotent, and desires which are adjusted to the conditions of life. Consider the inward and withdrawn character of the one, the outwardly expanding character of the other. There lies their salient difference. But this difference touches merely the diverse character of their desires. It will admit of our classing the bilious as a subordinate type, but offers us no grounds on which to co-ordinate it with the preceding types.

Such in outline is the interpretation which our author gives of these famous types—not ostensibly indeed—but they press upon his thought and force recognition, and beneath their several disguises, as the sensitive, emotional, passionate and apathetic, we detect their presence and familiar characteristics. If he has not been uniformly successful in all of them, if their central qualities have not yet been finally established, we must bear in mind the difficulty of the task. On the whole he has presented the best, the most coherent, the most genuinely psychological interpretation they have yet received. The suggestiveness of these types is perennial. They could not have survived centuries of use unless some profound truths were embodied in them. But they are drawn in waving outlines difficult to seize.

We have now to consider the final classification of M. Malapert, and the relation which the two popular classifications bear to it. "In a character as in an organism," he says, "there are dominant systems and others subordinate, there is a mainspring which impresses on the rest its direction and velocity, there is a certain function preponderant. . . ." [2] But this function dominates, but does not exclude. In accordance with this principle, he counts six generic types; and each *genus* has its subordinate species. These fundamental types are—1, the apathetic;

[1] P. 43. [2] P. 206.

2, the feeling (*les affectifs*); 3, the intellectual; 4, the active; 5, the resolute (*les volontaires*); 6, the balanced. The first is a type of the temperaments. The second contains, as its species, the remaining three—the sensitive, emotional and passionate. The second, third and fourth *genus* are the popular types of the man of feeling, the man of thought, and the active man. We have thus a synthesis of the two popular classifications. But how does the first type conform to the author's principle? What is predominant in the apathetic man? He sins by deficiency of all the mental functions, not by excess of any. Nor, as the name implies, can the balanced show any such predominance; but our author contends that the very equipoise in which it consists is a "kind of dominant character,"[1] and if Will is predominant in the resolute, as a mode of conation, we should expect this type to be subordinated to the *genus* activity instead of co-ordinated with it.

In the author's treatment of the intellectual *genus*, we realise the straits to which his principle confines him. Every type of the temperaments must be excluded from it, because in them feeling controls thought. But one species of the intellectual is the *dilletanti*, and there is no incompatibility between it and the sanguine; the superficial and versatile intellect of the one seems admirably adapted to the superficial and versatile emotions of the other. And in the passionate type, is there an essential incompatibility between its ardour of desire and the intellectual life? M. Malapert is aware that there are men who are possessed of a genuine passion for knowledge. They are one of his admitted species. But, he protests, they are not to be confused with the passionate, properly so called, "their purely intellectual passion" having particular effects of its own.[2] And with regard to the apathetic, as many writers have maintained that the intellectual life is destructive of emotion, M. Malapert, whilst denying the general law, is constrained to admit the possibility.[3] The intellectual man is sometimes, through deadness to emotion, an apathetic.

The active type presents unusual difficulties. For is there not an activity of thought and are not the intellectual eminently active? No; as M. Malapert understands the term—the popular sense in which the active man is opposed to the man of thought—they are not. But he also understands by the term 'activity' a universal mental function and in this sense they are. In this type we find "a natural and ceaselessly renewed tendency for action". And, like M. Ribot, he both regards it as based on the predominance of a universal function, yet having this contracted outlet that those who belong to it "live above all externally".[4] With regard to their feelings they are like the sanguine, to whom they "sometimes approximate," "expansive and mobile," and inclined to look at things on their pleasant side; but that

[1] P. 208. [2] P. 235. [3] P. 233. [4] P. 235.

which distinguishes them is that "activity lives for itself, is not subordinated to feeling".[1] With regard to their intelligence it "sins always by defect of reflexion, has no interest in what is unattainable in the ideal".[2]

We have now passed in review the main features of M. Malapert's classification. No one who has experienced the difficulties of the task could expect it to be final. At least it is better and more complete than any that has preceded it. It is interesting as an attempt to unify the disconnected classifications of popular thought; and its success would have been greater had the author discerned the limits within which alone the quantitative conception of 'predominance' is applicable. Constrained by this conception of his predecessors, his fundamental types sometimes appear arbitrary, because they are not in harmony with it, and the arguments to justify their concordance, sophistical.

ALEXANDER F. SHAND.

Ueber die Bedeutung des Weberschen Gesetzes. Beiträge zur Psychologie des Vergleichens und Messens. Von A. MEINONG. Hamburg und Leipzig: Leopold Voss, 1896. Pp. 164.

THE present work consists essentially of a single thesis proved by a single argument. The thesis is at once simple and ingenious, the argument at once lucid and subtle. The author avoids almost all the mistakes and confusions which beset writers on psychical measurement, and makes several important distinctions which are rarely, if ever, to be met with elsewhere.

Herr Meinong's thesis is, briefly, as follows: The true import of Weber's Law is, that equal dissimilarities (*Verschiedenheiten*) in the stimuli correspond to equal dissimilarities in the corresponding sensations; while the dissimilarity of two measurable quantities of the same kind may be regarded as measured by the difference of the logarithms of these quantities. Thus where sensations are what the author calls extensive, they are directly proportional to their stimuli, though wherever the sensations are quantitative, their dissimilarity is proportional, as in Fechner's formula, to the difference of the logarithms of the stimuli—provided these be measurable quantities of the same kind. This double contention depends upon the distinction between dissimilarity (*Verschiedenheit*) and mathematical difference (*Unterschied*). The use made of this distinction demands a careful account of quantity and measurement, of indivisible quantities, and of relations which are quantities. I am unacquainted with any better discussion of these topics than that contained in the present volume, and the points where the author appears mistaken do not, I think, invalidate the most important part of his thesis.

[1] P. 236. [2] *Ibid.*

The first section of the book consists of a discussion of the nature and range of quantity. It is pointed out that quantities need not be divisible, since relations may be quantities. Distance in space, for example, is unquestionably both a quantity and a relation: to suppose distance divisible, can only arise from a confusion between distance and length (*Strecke*). In like manner, the author continues, similarity and dissimilarity are quantities: two things may be more or less similar, but the similarity is certainly indivisible.

In this sweeping assertion that similarity and dissimilarity are always quantities, the author ignores an important controversy. Had he applied his doctrine to the relations of other pairs of terms than quantities of the same kind, it would, I think, have led him into serious errors. If the relations in question are reducible to identity and diversity of content, they cease to be properly quantities. Moreover this reduction is certainly valid in some cases. Herr Meinong asserts, for example, that between a colour and a tone there is more difference than between two colours (p. 44). It would be truer to say that there are more differences. Wherever the relations in question are reducible to complete identity in some points, and complete diversity in others, there quantity seems not properly applicable. Diversity of content appears to be incapable of quantity: we cannot say that diversity in respect of one content is equal or unequal to diversity in respect of another. But there are other cases—and it is to these, fortunately, that the author applies his doctrine—where a difference exists which is not reducible to mere diversity of content. Such cases are, among others, differences of position and of magnitude; and differences of magnitude, naturally, have the chief importance in discussing Weber's Law.

The second section deals with comparison, especially as to magnitude. Apart from the possible objection that magnitude is a notion essentially dependent upon comparison, and that the present section ought, therefore, to have been the first, the account of quantitative comparison is excellent. Likeness and unlikeness are notions not demanding a definition; but they are not the only results of quantitative comparison, which is unique in yielding, not mere difference of magnitude, but the relations of greater and less. Whatever appears different, on immediate comparison, is different; but what is different only appears so down to a certain limit. Below this limit, a difference is imperceptible. Differences should not be described by their perceptibility, where such a description can be avoided; for our knowledge of the difference perceived is prior to our knowledge of the perception of difference, and a direct treatment of differences, where possible, is preferable to the indirect treatment by means of their perceptibility. Two just perceptible differences need not be equal; but we have a well-grounded presumption, in favour of their equality, where there is equal susceptibility to differences.

Comparison of parts and measurement form the subject of the third section. The author recognises, what is so often overlooked, that numerical measurement proper depends upon divisibility, and is therefore inapplicable to quantities which are relations. He points out, nevertheless, that, where indivisible quantities have divisible correlates, all the practical advantages of measurement may often be obtained by means of these correlates. Measurement proper is either mediate or immediate: the latter is only applicable to space and time. But there is, for intensive quantities, a third kind of measurement, which the author calls substitutive (*surrogativ*), because what is really measured is an extensive substitute. For example, distance, being a relation, is indivisible; but it is always associated with a length, which is divisible. Distances, therefore, are regarded as measured by means of the correlated lengths. Similarly velocities are regarded as measured by means of the lengths traversed in a given time. In such cases, though another quantity is really measured in place of the quantity in question, we regard the latter as measured, because the operation ensures one or more of the three advantages derived from measurement proper. These advantages are: (1) That an element of a continuum is replaced by a discrete term, namely a number, and the intractability of the continuum is relegated to the unit; (2) that the number thus obtained has the same relation of magnitude to other numbers as the correlated quantities have; (3) that the absolute limits, zero and infinity, which have validity for indivisible as well as for divisible quantities, are the same for the numbers and for the corresponding quantities. All these advantages are secured in measuring distances and velocities; the first only is secured in measuring temperature by the thermometer. This last case illustrates that measurement is not sharply separated from mere determination without measurement.

This excellent discussion of the sense in which indivisible quantities can be measured is applied, in the fourth section, to the measurement of the dissimilarity between quantities of the same kind. Dissimilarity is a relation, and therefore indivisible. In the case of two quantities of the same kind, their dissimilarity appears to be also a quantity.[1] With space and time, the distance is associated with an intervening length; but in some cases where dissimilarity is a quantity there is, according to Herr Meinong, no intervening length. By an intervening length he means, apparently, no more than the power of continuous variation from the one term to the other. As an instance where this is not possible, he gives the dissimilarity of a colour and a tone. This, however, is not properly a quantity, but a difference of content. In all cases where dissimilarity is a quantity, there must be, I think, an inter-

[1] "Dissimilarity" is not quite an adequate translation of *Verschiedenheit*, but the word "difference" is required in the mathematical sense, and it is necessary to preserve the distinction by using different words for the two ideas.

vening length in the author's sense. As, however, the subsequent discussion is confined to the dissimilarity of measurable quantities of the same kind, the above limitation does not impair the validity of the argument.

The dissimilarity of two quantities is evidently capable, at most, of a substitutive measurement. Where the quantities themselves are measurable, the dissimilarity must be measured, if measurable at all, by some function of the two quantities. This function is not the mathematical difference, for the dissimilarity is infinite when one of the quantities is zero and the other finite. Moreover, the mathematical difference is a radically distinct idea, dependent wholly on divisibility. Thus the difference of two lengths is a length, but their dissimilarity is a relation. The dissimilarity between 1 and 2 is greater than that between 6 and 7, though the difference is the same. Also the mathematical differences may differ when the dissimilarities are the same.

This distinction is certainly of great importance. It is one, moreover, which mathematics and preoccupation with spatio-temporal quantities tend to obscure. In finding a function for measuring dissimilarity, certain requirements are laid down. (1) The dissimilarity must vanish when the quantities are equal; (2) It must be infinite when one quantity is finite and the other is zero or infinite; (3) The dissimilarity between A and B *plus* that between B and C must be equal to that between A and C. These conditions are essentially similar to those which, in non-Euclidean Geometry, regulate the expression of distance in terms of co-ordinates, and Herr Meinong might have simplified a needlessly complicated piece of mathematics by reference to this analogous case. The conclusion is, that the function required is the logarithm of the ratio, just as, in non-Euclidean Geometry, it is the logarithm of the Anharmonic Ratio.[1] To this conclusion, if we remember the meaning of substitutive measurement, there seems no valid objection. It must be remembered that, in such measurement, the end to be attained is mainly practical—theoretically, the quantities in question are not measured at all. But there is a proposition, essential to Herr Meinong's formula, which has great theoretical importance. If the dissimilarity of A and B is equal to that of C and D, then A, B, C, D are proportionals—a theorem which, if correct, throws a new light on Weber's Law.

The fifth section deals with psychical measurement and the interpretation of Weber's Law. This section is somewhat marred, I think, by a division of psychical quantities into extensive and intensive. The author does not accept the view that psychical quantities must be intensive. He urges, in agreement with Mr. Bradley,[2] that psychical quantities may be extensive, since the pre-

[1] *Cf.*, *e.g.*, Whitehead, *Universal Algebra*, book vi., chap. i.

[2] "What Do We Mean by the Intensity of Psychical States?" MIND, 1895.

sented, as such, is psychical. He does not explicitly proceed, like Mr. Bradley in a subsequent article, to infer that psychical states may be extended, but this inference seems irresistible. If the presented, as such, is psychical, then every possible object of experience is psychical. This leads either to the philosophy of Berkeley, or to an unknowable thing in itself. To urge, as Herr Meinong does, that imagined space is measurable and divisible, though purely psychical, seems either irrelevant or untrue. For imagined space is as little mental as real space; it differs from real space only in the fact that it does not exist: while the imagination of space, which does exist, is not divisible. We have an imagination of something divisible, but the imagination, which alone is mental, is not divisible. Such an argument, therefore, cannot prove the existence of psychical quantities which are divisible. This question is too wide for a review, but I cannot avoid the conviction that to regard the presented as necessarily psychical must make havoc of a most fundamental distinction.

The discussion of psychical measurement treats extensive and intensive psychical quantities separately. In the supposed case of the former, the author arrives at the conclusion that they are simply proportional to their stimuli. But his chief concern is with dissimilarities. Weber's Law is regarded as showing that, if $r_1\ r_2\ r_3\ r_4$ be four stimuli, and $e_1\ e_2\ e_3\ e_4$ the corresponding sensations, then if $r_1 : r_2 = r_3 : r_4$, the dissimilarity of e_1 and e_2 is equal to that of e_3 and e_4. It follows from the previous section that equal dissimilarities of sensation correspond to equal dissimilarities of stimulus. No inference is possible, in general, as to the magnitude of the (intensive) sensations themselves: Fechner's deduction of the logarithmic formula depends upon a confusion of difference and dissimilarity. The same confusion underlies the hypothesis, propped up by a so-called "law of relativity," that the relative difference of two sensations is to be substituted for the absolute difference in Fechner's deduction. The discussion ends with a criticism of J. Merkel's articles on the relation between stimulus and sensation.[1] Merkel professes to prove experimentally that the sensation midway between two given qualitatively similar sensations corresponds to the arithmetic mean of the stimuli corresponding to the given sensations. On Herr Meinong's hypothesis, it should correspond to the geometric mean, and he candidly confesses that his theory is incompatible with this result. But he is amply justified, I think, in holding such experiments to be inconclusive. Merkel supposed numerical measurement directly applicable to quantitative sensations, and accordingly regarded the idea of a mean sensation as perfectly definite. It must rather be held that such a discussion as Herr Meinong's is necessary before such a phrase acquires any meaning. Merkel confesses (*Phil. Stud.*, x., p. 220) that a comparison of feelings of dissimilarity as

[1] *Phil. Stud.*, iv., v., x.

such was not attempted, yet such a comparison, difficult as it would be in practice, is alone relevant to our author's theory.

Many other points, which call for discussion, have been unnoticed, as not bearing directly on the argument of the work. There are throughout many subtle and suggestive observations on quantity, measurement, and relations. The author's contention, if it perhaps simplifies the question, especially in the interpretation of Weber's Law, with somewhat excessive optimism, is based on very close and careful reasoning, and offers, on essentials, very few vulnerable points.

B. Russell.

Psychologie als Erfahrungswissenschaft. Von Hans Cornelius. Leipzig: Druck und Verlag von B. G. Teubner. London: Williams & Norgate, 1897. Pp. xv., 445.

The title of this work is somewhat deceptive. It is concerned more with theory of knowledge than with psychology; indeed, it would seem that the author does not recognise the distinction between the two. He assumes that an account of the way in which knowledge grows in the individual mind is at the same time an explanation of its nature and validity. The result is not good; both his psychology and theory of knowledge suffer. He has written a valuable and interesting book, as a man of his ability could not fail to do. But the confusion between two distinct lines of inquiry is a great drawback.

The theory of knowledge advocated by Prof. Cornelius is clear and simple. He begins by recognising what he calls the "symbolic function of memory-images" as an ultimate and inexplicable fact. The present image represents for the consciousness of the subject the previous experience of which it is a reproduction. It is impossible to say how it comes to play this part. Its representative function must simply be accepted as a final inexplicability (pp. 20-28). On the other hand, he makes an interesting attempt to trace all other symbolic functions of presentation to that which is involved in memory. I do not think that this attempt is successful (pp. 57-62). But this part of his work is suggestive. Given a mental image which is symbolic of an experience not actually present at the moment, the question of the truth or falsehood of the symbolism may arise. The test of truth is verification by the actual experience of the cognitive subject. If it is possible for the subject to actualise his symbols by obtaining the experiences symbolised in the order and manner in which they are symbolised, his mental representations are true. The conception of objective existence is identical with the conception of the possible realisation in terms of individual experience of what is ideally represented by the cognitive subject.

The author applies this theory to explain the nature of our

knowledge both of mind and matter. Its application to mind is the more interesting, but the English reader will be better enabled to catch the drift of the author if we first refer to his account of our belief in the external world. In his fifth chapter, which treats of this topic, he makes no reference to Mill's famous discussion in the *Examination of Hamilton*, and he does not use the phrase "permanent possibility of sensations". Yet his theory is simply identical with Mill's. Concepts of material objects as existing independently of the subject which cognises them are for him, as for Mill, simply concepts of the possibility of obtaining certain sensations by the observance of certain conditions. He calls them "concepts of empirical connexion". A material object is for him simply an organised group of expectations. He does not deal with the objections which have been brought against this theory; indeed, he seems to be unaware of them. For instance, he does not face the difficulty that the order and connexion of physical facts is quite different from any possible order and connexion of subjective experiences in the way of sensation, —*e.g.*, that though we cannot see or touch simultaneously the inside and the outside of a solid body, yet both exist simultaneously. Nor does he explain how it is that physical science recognises the existence of much which cannot by its very nature be actually experienced in the way of sensation,—*e.g.*, molecules and their interaction, the luminiferous ether, and so on. It is characteristic of Cornelius's point of view that he refuses to assume the existence of the material world as a datum for explaining the process by which the individual mind comes to be aware of such a world. For him this would be arguing in a circle. He supposes that the only means of ascertaining the nature and validity of our knowledge of the external world is by tracing its psychological growth. If we assume such a world to be given at the outset, we already prejudge the question which is to be solved. In following this line of thought, Prof. Cornelius appears to us to place himself in an altogether untenable position. He confuses two distinct problems; on the one hand, there is the question, How does the apprehension of an external world, such as it actually exists for ordinary consciousness, come into being? on the other, there is the question, whether the view taken of the external world by the ordinary consciousness is a right one; and what sort of correction it requires from critical reflexion. If these two problems are identified, confusion may arise in two ways. Either pyschology is substituted for epistemology, or epistemology for psychology. In the first case, an account of the stages through which the ordinary consciousness of the external world has arisen, takes the place of a criticism of its validity. In the second case, an account is given, not of the processes by which the ordinary consciousness of the external world arises, but of the processes by which an author supposes that what he takes to be the true view of external reality may be obtained. It is the second course which is followed

by Cornelius. His doctrine of the nature of external reality is determined from the outset by his general theory of knowledge; and the psychological part of his work simply consists in showing how an individual mind may attain, not the actually existing apprehension of an external world, with all its possible errors and confusions, but that view of it which, according to Cornelius, is the true one. The result is that his psychology, so far as regards this question, is merely his theory of knowledge in masquerade. We have still to consider the alleged circle of assuming the existence of an external world when the problem is to trace its origin. In reality, there is no such circle, so long as we retain the strictly psychological attitude. The psychologist has to investigate the processes through which the presentation of an external world grows up in an individual subject. It would certainly be a circle to assume that this subject whom he is studying already possesses a knowledge of the external world, but it is no circle to assume that he himself possesses such a knowledge. If he did not possess such a knowledge, the problem could have no existence for him.

The most interesting application which Cornelius makes of his theory of knowledge is to the nature of psychological analysis. We may merely by attention, without alteration of other conditions, succeed in discriminating in a presented object constituents which we have previously failed to discriminate. On the other hand, so soon as attention is withdrawn, the distinctions which previously existed disappear. In a musical note, for example, we only discriminate overtones when we specially attend to them. The problem discussed by Cornelius is as follows: What sort of existence, if any, have the discriminated differences before they are discerned and after they have ceased to be discerned? In both cases he answers in accordance with his general theory of knowledge that undiscriminated differences exist only as permanent possibilities of discrimination. If I say that in a complex of sensible qualities elements exist which I do not distinguish, I merely mean, or at least ought merely to mean, that these elements would be discernible by me under certain conditions. This view certainly evades many difficulties, and it has a neatness which is attractive. For reasons which I have given elsewhere, I cannot myself accept it. It has been criticised most thoroughly by Mr. Shand in his article on "Feeling and Thought" (MIND, N.S., No. 28, October, 1898).

The apparent simplicity of Prof. Cornelius's theory of psychological analysis is marred by a further development which the facts compel him to give to it. When differences cease to be discriminated, they ought, according to the theory, to exist only as possibilities of discrimination. It is therefore with something of a shock that we find Cornelius treating them as persistent agencies determining the whole course of mental life. The total

state of consciousness at any moment has its nature determined by elements which at the moment are not distinguished. Cornelius rightly insists on this from beginning to end of his *Psychology.* But he never faces the difficulty of mere unrealised possibilities persisting as operative factors, each contributing its share to determine the nature of our actual experience. It would certainly seem that his doctrine requires considerable modification if it is to be made self-consistent. If we take into account the positive part played by undiscriminated factors, it is hard to see how the view of Cornelius differs from such a theory of psychical dispositions as is advocated by Lipps.

The book by no means wholly consists of theory of knowledge substituted for psychology, or of theory of knowledge applied to psychology. It also contains much valuable work of a directly psychological nature. In particular, attention may be drawn to the acute and careful exposition of the mode in which discrimination gradually increases in delicacy; to the discussion of the interesting question whether we can distinguish in the memory-image what we have failed to distinguish in actual perception; to the criticism of atomistic psychology; and to the statement of the laws of association.

Much is made throughout the work of the principle of the "economy of thinking"; but it is difficult to make out whether this principle is to be regarded as epistemological or psychological, or both without distinction. It sometimes seems to figure as an ultimate test of truth; but if we inquire what claim it has to this position, we are left to gather the answer for ourselves. It would seem that Cornelius regards the principle of the economy of thinking as an ultimate test of truth simply because he regards it as a fundamental law of psychical process. But the mere fact that we take as little trouble as possible in the attainment of our ends, whether theoretical or practical, does not seem of itself to constitute a reason why our mode of procedure should be a right one. On the whole, the psychological application of the principle of economy, as it is followed out by Cornelius, is valuable and suggestive; but it throws little light on theory of knowledge.

In conclusion, we must refer to the part played in the psychology of Cornelius by what he calls the "memory-image". If we understand him rightly, he regards the memory-image as always having a certain individuality and independence which make it separately reproducible apart from actual impressional experience. At the same time, he regards all recognition as depending on the memory-image, and the delicacy with which different objects are discriminated as depending on the delicacy with which their memory-images are discriminated. This seems certainly wrong. To refer to no other objections, a man may be able to discriminate objects perfectly well by sight, and yet have virtually no power at all of reproducing visual imagery.

Since I have dwelt so much on points on which I am compelled

to criticise Prof. Cornelius in an adverse sense, I ought to say that, even where I differ from him most, I find him highly stimulating and suggestive; and that there is much in his book with which I thoroughly concur, and which I find most helpful. The author's style, both of thinking and writing, is distinguished for clearness, simplicity, and elegance.

EDITOR (G. F. S.).

VII.—NEW BOOKS.

Human Immortality: Two Supposed Objections to the Doctrine. By William James. London: Archibald Constable. Pp. 126.

It has become a tacit convention among philosophers to preserve the loftiest and profoundest silence on the very questions which formed the first motive to philosophic effort and still form the culmination of philosophic interest. Hence it seems at first to savour of impertinent *ἀπαιδευσία* that any one should still be found to take so much as 5000 dollars' worth of (posthumous) interest in the question of his immortality, and it causes a shock of surprise that a great academic institution like Harvard University can be found to endorse such a procedure and to supervise the delivery of an annual "Ingersoll Lecture on the Immortality of Man". Perhaps however it may quiet some alarm among those who dread no worse fate for philosophy than that it should arouse popular interest, to add that even so there is less money spent on the exploration of the future life than on almost any other human fad, from arctic exploration to the recovery of the Lost Tribes, and that the establishment of the Ingersoll Lecture stands alone. Nevertheless the fact remains that even so slight a beginning is calculated to stir up discussion of a topic which is full of all sorts of scientific and religious taboos. When moreover a writer and thinker of Prof. James's eminence is induced to deliver an opinion upon any aspect of such a question, the most jaded and cynical of sceptics may well be pardoned if he finds the equanimity of his indifference slipping from him.

Our author himself however appears quite unconscious of his audacity in braving such prejudices, and handles his thorny subject in a perfectly straightforward and matter-of-fact way, which cannot but arouse the admiration of the less courageous. He has a reply to make to two widespread objections to the belief in a future life, and there is no mistaking the tenor of his answer.

In the first place he will not allow the conclusiveness of the traditional materialist view which infers from the correlation of physical and mental phenomena that consciousness is a function of the brain and that a mental life without a brain is strictly inconceivable. This *production* theory of the working of the brain overlooks an alternative interpretation of the facts. The brain may just as well be regarded as an organ for the *transmission* of a consciousness which manifests itself through a brain with more or less difficulty, but is intrinsically independent of it and belongs to a different order of existence. Now a transmission theory obviously will explain all the facts equally well, and can never be refuted by empirical evidence, for the reason that it simply inverts the causal interpretation of the same psychophysical concomitance. Logically we have always the choice of explaining the higher by the lower or the lower by the higher, and scientifically all we can demand is that their connexion should not be denied. Prof. James points out that his view is not altogether novel, although it has never been properly considered—

a neglect which can hardly continue after the striking manner in which he has called attention to it. Nor is the forlorn hope to be envied on whom will devolve the task of attacking Prof. James's position. For that, logically, seems well-nigh impregnable.

Among the details of the argument it should be noted that Prof. James is careful to point out that he leaves the nature of the mind which manifests itself through the brain-processes an open question, and that for a good pluralist "there may be many minds behind the scenes as well as one". Further he holds that the alternative he supports possesses great advantages over the materialist theory in the explaining of the origination of consciousness, and of the shifting of the psychophysical threshold as well as in the comprehension of supernormal phenomena. As for the difficulty of explaining "how the brain can be an organ for limiting and determining to a certain form a consciousness elsewhere produced," all that is needed is "to retort with a *tu quoque* asking . . . how it can be an organ for producing consciousness out of whole cloth".

Prof. James's second point concerns itself with the objection to an infinite multiplication of immortal beings of a lowly and disgusting character. This objection is rooted in æsthetic sentiment and is answered by an appeal to religious sentiment. Here, however, Prof. James seems to be dealing with less crucial matters and to answer in a less conclusive way. It may be doubted whether the objection to "the incredible and intolerable number" of immortal beings is as modern as he supposes, and was not felt while the world seemed "a comparatively small and snug affair". At all events, the theories of pre-existence and metempsychosis are among the earliest and most universal ingredients in the belief in immortality, and with a little modernising they even now contain a very complete answer to the difficulty in question. Prof. James's suggestion, on the other hand, that God's infinite sympathy transcends ours and embraces even the humblest creatures in its appreciation, postulates a previous decision of the question whether *sub specie æternitatis* individual personalities retain any value. It may be, of course, that from the point of the whole all its parts possess an equal value which is infinite rather than infinitesimal, but the fact remains that most religious and philosophic 'theologies,' wittingly or unwittingly, render this an uncommonly difficult belief to sustain. Still Prof. James can hardly be wrong in thinking that the difficulty he discusses is a real one and that it is a real service to have ventilated it.

For ventilation by the most approved modern methods is what the whole subject most sorely needs. At present it forms one of the darkest and dustiest of the lumber-rooms that are the province of philosophy. It is a mass of decayed traditions and distorted facts, of half-hearted aspirations, broken beliefs and uncompleted inferences, haunted and defiled by savage prejudices which cannot bear the light of day. Hardly any attempt has been made to work out systematically the theoretic possibilities of the subject. Almost all the relevant facts are bitterly disputed. Even the psychological facts as to men's actual thoughts, feelings and desires on the subject are very imperfectly known, and would probably occasion no slight surprise to those who are content to adopt the literary tradition that 'man naturally desires to be immortal'. It is only by a complete change in the social atmosphere which envelops it that the subject can be rendered fit for really rigorous investigation. No one who has tried will underrate either the extreme difficulty and delicacy of the task of rendering the social atmosphere fit for such scientific work or the slowness with which even under the most favourable circumstances it can be achieved. But if Prof. James's gallant efforts to introduce some fresh air

and light are seconded by like-minded lecturers in the future, we may look forward to a time when the work of ventilation will be done, and that of verification can profitably be begun. Perhaps by that time some generous donor will have equipped Harvard, or some other university with a laboratory for the 'psychical researches' which the current 'experimental' methods so conspicuously fail to prosecute.

F. C. S. Schiller.

Leibniz. The Monadology and Other Philosophical Writings. Translated with Introduction and Notes by R. Latta, M.A., D.Phil. Oxford: Clarendon Press, 1898. Pp. vii., 437. (8s. 6d.)

This is a book which should be welcomed by many others besides professional teachers and students of metaphysics, and may indeed be said, in the hackneyed phrase, to fill a real gap. It is remarkable, and not at all to our credit as a nation of educated men, that we have hitherto had no worthy English version of the philosophical writings of Leibniz. By his freedom from pedantic technicalities, the extraordinary range of his studies, and the wonderful suggestiveness of his ideas, Leibniz appeals, more perhaps than any of the great metaphysicians of modern times, to the reflective and educated man who, without being exactly a philosopher, takes an intelligent interest in philosophical speculations, provided they can be put before him in a language he understands. And one has only to think of the writings of Prof. James, or of Du Bois-Reymond, to be reminded that, with the specialists both in Psychology and in Physics, Leibniz is still a living and potent influence. Moreover the chief works of Leibniz have what is from the average reader's point of view the high merit of being as concise and brief as they are free from wearisome technicality. It may be doubted whether any other man could have achieved the feat of compressing a system of Philosophy into a dozen pages; it is certain that, with the exception of the author of the *Monadology*, no one has ever done so or is likely to do so again. Thus the special characteristics of Leibniz seem to fit him in an uncommon degree for translation, and in Dr. Latta he has found a translator who performs his task with as much learning as accuracy. Were it not for certain translations of other works of Leibniz which have recently been given to the world, it would be indeed "faint praise" to say that Dr. Latta's version is everywhere faithful both to the original text and to the laws of English prose style. As it is, the character of these previous versions, or rather perversions, makes it necessary to say that the present translation is one on which a reader unskilled in French may confidently rely as correctly conveying the sense of the author. The works selected for translation have naturally been those which are of chief importance as containing in a brief compass Leibniz's statement of his characteristic tenets; the *Monadology* and the *Principles of Nature and Grace* in the first place, of course, and, as illustrative of these *Hauptschriften*, the *New System of the Nature of Substances*, with the "explanations" called forth by it, and one or two other minor tracts. The Introduction, which contains a detailed account of the life and philosophy of Leibniz as well as a critical estimate of his influence on later thought, will henceforth take rank beside Merz's brilliant and all too brief monograph as an indispensable aid to the English student of the philosopher of Leipzig. If Dr. Latta is on the whole less fertile in original suggestion than his predecessor, he is, as would be expected from the scope of his work, much fuller of information on points of detail. There is hardly any

problem of importance suggested by the philosophical works of Leibniz which does not receive discussion and illustration somewhere or other in this admirable introduction. Particularly interesting and valuable is the elaborate examination of the influence of Leibniz upon later thinkers, notably upon Kant and Lotze. If there is any criticism one is tempted to pass upon so learned a discussion, it would be that, in view of English ignorance, the work of Herbart is scarcely discussed at sufficient length. After all, Herbart is not only more akin in spirit to Leibniz than most of his German successors, but may also fairly be said to be the one German philosopher of the great epoch, besides Kant, who is much more than a *magni nominis umbra* to-day. For both these reasons one could wish that Dr. Latta had treated of him in a way that would appeal rather to the many English students who are not acquainted with his works than to the few who are. And while one is about the task of criticism, there are two other minor matters one might mention in which Dr. Latta will hardly carry all his readers with him. His treatment of the relations between Leibniz and Spinoza errs perhaps through a natural charity to the memory of the author whom he has studied to such purpose. Nothing in Leibniz's life is less creditable, when judged by the ordinary standards of honourable men, than his constant endeavours to minimise the importance of Spinoza as a thinker, and his readiness to acquiesce in the popular prejudices against so "impious" a writer. On this point, the language of Mr. Pollock in his *Spinoza* seems not a whit too severe, and it is perhaps a pity that Dr. Latta should have repeated Leibniz's half patronising, half sanctimonious reflexions on his great contemporary without a word of censure. The other point is one of more importance. We hear a great deal in Dr. Latta's Introduction, as we are bound to hear in any account of Leibnitian metaphysics, of "activity" and "force" as constituting the real essence of bodies. But Dr. Latta, like Leibniz himself, omits to explain what "activity" and "force" stand for, over and above certain empirical facts which are ultimately reducible to terms of extension and rate of change of velocity. It is of course clear from what Leibniz and his editor say about Cartesianism that they understand by "force" and "activity" something very much more than convenient symbols for such facts about extension and acceleration, but neither seems prepared with an answer to the question how much more is meant. Yet one cannot but think that, in view of the loose way in which spiritualist writers such as Prof. James are accustomed to use these terms, they should either be rigorously defined or rigorously banished from our philosophical vocabulary. And would it be hypercritical to suggest that "Leibniz's far-reaching suggestion of the unconscious *petites perceptions*," so far from being such a service to psychology as Dr. Latta maintains, has really proved a *damnosa hereditas* of obscurity and confusion? These are however but points of detail, and divergence of opinion about them is only to be expected. The fact remains that Dr. Latta has produced the most elaborate and learned work on Leibniz in the English language, a work for which all future students must be profoundly thankful, and which reflects the utmost credit on the author as well as on the University of Edinburgh, to which part of the Introduction was submitted as a doctoral thesis, and on the Clarendon Press which has undertaken the publication.

A. E. Taylor.

An Outline of Philosophy, with Notes Historical and Critical. By JOHN WATSON, LL.D., Professor of Moral Philosophy in Queen's University, Kingston, Canada. Glasgow: James Maclehose & Sons. Pp. xxii., 489.

This is a second edition of the book published by Prof. Watson in 1895 under the title, *Comte, Mill and Spencer, an Outline of Philosophy.* The two titles give some indication of the general nature of the book. As an "outline of philosophy" it has something to say on most of the chief problems of metaphysics or philosophy proper; but it does not directly deal with psychology, logic or economics, and it hardly does more than touch upon the questions of political philosophy, æsthetics and the philosophy of religion. Thus it does not profess to give a "complete system of philosophy," but it is offered as "a manual, which cannot do more than awaken an interest in philosophical problems, and indicate the lines on which in the opinion of the writer they may be solved". It need hardly be added that these lines are the lines of Idealism as it is expressed in the writings of Green and of Mr. Edward Caird. The method of the book is suggested by the original title. The various subjects are treated in logical order, proceeding from the most abstract to the most concrete, while the discussion is throughout kept close to the history of philosophy, each section being developed by exposition and criticism of some notable thinker. Thus Prof. Watson might have added to the names in his original title those of Darwin and Kant. In this new edition the historical element is strongly reinforced by the addition of nearly 200 pages of "notes historical and critical," dealing with specific problems in the writings of Plato, Aristotle, Descartes, Locke, Berkeley, Hume, Kant, Hegel and Lotze. There are obvious educational advantages in such a method as that which Prof. Watson has adopted. By the continual discussion of other theories he prevents the systematic exposition of his own opinions from taking too dogmatic and absolute a form; and, on the other hand, as the general plan of the book is not chronological but logical, the student is enabled to realise the unity of the great philosophical problems much more thoroughly than if he were to read an ordinary "history of philosophy," which resembles too much a mere list (or *catalogue raisonné*) of systems. Yet Prof. Watson's method has its dangers, and the very excellence of his work may be its undoing by tempting students to content themselves with his admirably lucid expositions and to neglect the "first-hand study of the authors" on which he rightly insists.

The book falls naturally into five main parts, discussing (1) the problem of philosophy in general, including such questions as the relation of philosophy to the special sciences and the relativity of knowledge (with special reference to Comte); (2) the philosophy of nature, including geometry, the science of numbers and the physical and biological sciences (with special reference to J. S. Mill and Darwin); (3) the philosophy of mind, or the problem of the relation between subject and object (with special reference to Mr. Spencer); (4) moral philosophy, including the problems of duty, freedom, the *summum bonum*, and rights (with special reference to Kant); and (5) the philosophy of the absolute, including the philosophy of religion and æsthetics (again with special reference to Kant). Obviously this is an immense deal of ground to cover in a single volume — too much to make a complete success possible. Yet, taking into consideration the magnitude of his attempt, Prof. Watson's achievement is remarkable: he has certainly succeeded in putting all the main issues very clearly before his readers. Occasionally, but not often, he allows

himself to commit the sin that doth so easily beset a lecturer, that of reiteration and labouring his point. And, on the other hand, there are portions of the book (*e.g.*, the note on the Association of Ideas and the chapter on the Philosophy of the Absolute) where the discussion is either too condensed to be useful to the student or too general to be adequate to the subject. Of course the improvement of the book in this respect would mean its enlargement, and even the most comprehensive books have spatial limits.

Without attempting to discuss the book in detail, one may remark upon the excellence of Prof. Watson's exposition and his acute yet sympathetic criticism in the chapters and notes which refer to Descartes and Kant, and in the notes on "The Platonic and Aristotelian Criticism of Phenomenalism" and on the views of Aristotle and Hegel regarding the principle of identity. This last note and the note on Descartes and Kant are the most valuable parts of the new material in the volume. The treatment of Mr. Spencer's position is also very clear and fair, and the exposition and criticism of Mill is on the whole very good, although on particular points (*e.g.*, the question of the inconceivability of the opposite as a test of truth) Prof. Watson's argument seems to some extent open to objection. In the new matter there are several things which, apart from their general value, will be of special interest to readers of MIND. In a note on "Agnosticism and Scepticism," Prof. Watson argues acutely against the scepticism of Mr. Alfred Sidgwick, as expressed in an article in MIND (N.S., vol. iii.), and in another note on "The Feeling Soul" there is a very interesting appreciation and criticism of Mr. Bradley's remarkable article in MIND (O.S., vol. xii.), in course of which, with much justice, Prof. Watson suggests that Mr. Bradley's position seems to imply the introducing into Psychology of the "preformation" theory of development, which has been discredited in biology. Again, in an admirable discussion of Lotze's theory of knowledge, Prof. Watson traces to the influence of Lotze the distinction which Mr. Bradley draws between ideas as 'events' and as having 'content,' a distinction which, in the form in which it is made, has had a baneful effect on the argument both of the *Principles of Logic* and of *Appearance and Reality*. Mention ought also to be made of the note on "The Problem of Human Freedom," in which there is some excellent criticism of the Kantian element in the work of T. H. Green. Such discussions as these make the book much more than a mere manual for students. While the main argument runs on familiar lines, it has the freshness that comes of contact with present questions.

R. LATTA.

The Mental Affections of Children: Idiocy, Imbecility, and Insanity. By WILLIAM W. IRELAND, M.D. London: J. & A. Churchill; Edinburgh: James Thin, 1898. Pp. ix., 442.

In his book on the *Mental Affections of Children: Idiocy, Imbecility, and Insanity*, Dr. Ireland continues the studies of his former book, *Idiocy and Imbecility*, incorporating part of the old material. Like the earlier book, this is written mainly for the practical alienist; but it is not without material for theoretic study, and Dr. Ireland does "not yet despair of receiving some little attention from the students of psychology in Great Britain" (as well as America). He writes out of the fulness of a long experience among idiots and imbeciles; his many contributions to his selected region of studies have found recognition in all the standard

text-books of insanity, and his concrete descriptions here will be appreciated by alienists at a very high value. Now, what has he to offer to the "student of psychology"? Directly, not very much that could be readily summarised; indirectly, a good deal. "Idiocy" he defines as "mental deficiency, or extreme stupidity, depending on malnutrition or disease of the nervous centres, occurring either before birth or before the evolution of the mental faculties in childhood". The vagueness of this definition is only partially reduced in the subsequent exposition. The "causes" (chapter iii.) of the "malnutrition or disease" are such as these: heredity, consanguine marriages, scrofula, drunkenness, gynagogy, fright to the pregnant mother, epilepsy, neuropathic conditions generally. These terms are all highly general and for the most part vague. The statements made under these heads do not assist us much to conceive precisely how the various conditions become efficient causes. Heredity, for instance, as indeed the author recognises, cannot well be offered as a "cause" until some coherent idea of the notions indicated and focussed by that name is first set forth. For the present, the theory of heredity is only a working hypothesis. Similarly with consanguinity and drunkenness. For the pathology of these we must go to the researches on the insanities of alcoholism. In this chapter, as in several other parts of the book, one is disappointed to note a somewhat ill-informed antipathy to the pathological applications of Darwinism. To Dr. Ireland's numerous misappreciations, not to say sneers, the Darwinian may retort that reversion and the other notions included under Darwinism are at least an effort after a positive causation of positive phenomena, and that words like "the influence of a formative force inherent in the whole organism which suits the size of the skull to the size of the brain" (p. 102) are a mere restatement of the fact, not even a formal explanation. But to return. The classification of the forms of idiocy (chapter iv.) into twelve varieties—genetous or congenital, microcephalic, hydrocephalic, eclampsic, epileptic, paralytic, traumatic, inflammatory, sclerotic, syphilitic, cretinism, idiocy of deprivation—is not altogether congruous with the definition, nor, even from the standpoint of pathology, is it free from cross-divisions; but it is sufficient for clinical purposes. One of the best parts of the book is the account of the histo-pathology of the brain of the genetous idiot. The later observers have produced abundant evidence of "arrested development," nerve-cells diminished in number and abnormal in shape and issuing processes. In some specimens nerve-fibres were found similarly deficient. But after histology has done all it can be expected to do, there remains, even in the idiot nervous system, the "soft play of life," and for further illumination one turns more hopefully towards the applications of functional analysis, after the fruitful methods of Dr. Pierre Janet of *la Salpetrière*. The discussion on microcephalic idiocy is good, but it would have been better without the useless girding at the "Darwinians". The discussions all through are essentially physical. In the chapter on "Insanity of Children," we have somewhat more psychology, but it is not correlated systematically with the normal. There is no sustained attempt, as with Dr. Bevan Lewis, to analyse mental complexes or apperceptions. But the objective material contains many good observations and hints. This chapter and the succeeding chapter on sensory and mental deficiencies of idiots, suffer from the want of a vigorous separation of physical and psychical. The chapter on "Methods of Educating Idiots and Imbeciles" contains many first-hand hints on method—the time to begin training, the teaching of written and spoken words, the development of the senses, etc. Here functional analysis would be much to the purpose, as has been shown by Laborde's results with the microphonograph in the education of deaf-

mutes (*Treatment*, 27th Oct., 1898). The object of training is to produce a citizen, if possible; short of that, to make the idiot less of a social burden. This brings us to the legal chapters, which must end in questions of ultimate ethics. Did space allow, many other points might be profitably discussed. In a compound book like this, it is impossible to develop the detailed studies necessary to bring the psychology of idiots into line with the normal, and we may hope that Dr. Ireland will find time and energy to elaborate still more in the light of a fuller psychology his sketch of idiot education. The last chapter—on "Wolf Boys"—is essentially anecdotal, and does not pretend to more than historical interest. It remains to add that the book is written with great fluency, and has many indications of wide and liberal scholarship.

W. Leslie Mackenzie.

A Study of a Child. By L. E. Hogan. New York and London: Harper Bros., 1898. Pp. x., 220. ($2.50.)

Miss Hogan gives in this volume selected extracts from the diary of a boy's life, beginning with fragmentary first-year notes, and continuing into the eighth year. The topics followed out in greatest detail are language and drawing; the work is illustrated by over 500 drawings by the child.

Miss Hogan is herself more interested in Froebel and moral education than in psychology. Hence her extracts tend towards illustrations of discipline and conduct rather than towards a child psychology. Probably the original diary, drawings and cuttings have been preserved; they would be of greater service to the psychologist than the present book. Moreover the reader cannot be certain of the accuracy of all the recorded observations. 'Receptiveness to sympathy' is not to be dated from the second and third days; the average baby, at any rate, does not kiss its mirror reflexion at three and a half months, though it may try to get the whole image into its mouth; humour hardly appears at five months. Again, we are told that baby-talk was never employed (p. 5), while instances of baby-talk occur later on (pp. 40, 42, etc.). On 18th July of the second year we read: "He pronounces l in clock now"; on 20th October: "He pronounced l in clock for the first time, and then said it only once". After the child has said 'papa' for some time (7th, 16th Nov.), we find that the author intended to say merely that the child *meant* 'papa'; up to 23rd November he had actually said 'baba'. 'Ach, Himmel!' is said on 24th November, and then, for the first time, on 14th December or later. A word explained on p. 55 is declared inexplicable on p. 63. It follows from all this that the work cannot be lightly used as a work of reference. The preparing of an index would have called the writer's attention to the many slips, and so have saved the reader much trouble. It would be advisable, too, should the book come to a second edition, to state the exact scale upon which the drawings and cuttings are reproduced. Anthropometric data are conspicuous by their absence.

On the other hand, the child psychologist will be grateful for this history of language development at large, and for the observations on instinctive fears, imitation, etc. Nor will he judge that all intrinsically improbable statements are wrong. The present reviewer can bear out the fact that "two voices, singing in parts," will soothe a child who is deaf to the blandishments of a single voice: though accurate harmony is not essential! Miss Hogan's plan is quite worth carrying out; and if she has not done all that could be done by it, she has nevertheless obtained a good share of positive result, besides furnishing a model for future 'child study in the home'.

Metaphysics. By B. P. Bowne. Revised Edition. New York and London: Harper Bros., 1898. Pp. xiv., 429.

The first edition of this work was issued in 1882. Subsequent editions have been numerous, but no change has appeared in the text beyond a new preface, inserted in the fifth edition. In the present edition, the material is extensively rewrought in order to co-ordinate it with the author's *Theory of Thought and Knowledge* (reviewed in Mind, April, 1898). Method and standpoint remain substantially unchanged. The method is an elaboration of the categories, and the order of arrangement is the traditional one—Ontology (Being; The Nature of Things; Change and Identity; Causality; The World-Ground), Cosmology (Space; Time; Matter; Force and Motion; Nature), and Psychology (The Soul; Soul and Body; Mental Mechanism; Freedom and Necessity). The most important new matter is probably that contained in the general conclusion and in the discussions of evolution, nature and the supernatural, and freedom and necessity. The harmony of the author's theistic idealism with empirical methods in the sciences is emphasised by the frequent use of a new phrase, "phenomenal reality". The thought of the whole work is best summarised, perhaps, in these words: "Mind is the only ontological reality. Ideas have only conceptual reality. Ideas energised by will have phenomenal reality. Besides these realities there is no other. This is what is called my idealism. . . . It might be described as Kantianised Berkeleianism. . . . Intelligence cannot be understood through the categories, but the categories must be understood through our living experience of intelligence itself. . . . This may be called my transcendental empiricism" (pp 423-425).

The Groundwork of Science: a Study of Epistemology. By St. G. Mivart. London: Bliss, Sands & Co.; New York: G. P. Putnam's Sons, 1898. Pp. xviii., 328. (6s.; $1.75).

There seems to be a fatal novelty about the study of epistemology. Prof. Ladd has recently proclaimed himself a pioneer in the epistemological field; and Prof. Mivart thinks that a theory of knowledge is "greatly needed at the present time" and that it is worth while to make an attempt "to satisfy this rational desire". That there was an epistemology within the circle of the old Greek philosophy: that Locke and Leibniz are representatives of highly developed epistemological theories, the empiristic and the rationalistic; that Kant inaugurated a revolution in the science, by his appeal to the critical method; and that there are, at the present day, some half a dozen epistemological schools, each with its position well defined and its cardinal tenets embodied in easily accessible books and periodicals: of all this the reader of the present work will gain no idea. In place of such knowledge he has Prof. Mivart's own disquisitions, which are neither very original nor (what might compensate for lack of originality) very lucid.

The chapters of the volume deal with an enumeration of the sciences; the objects and methods of science; the physical and psychical antecedents of science; language and science; the intellectual antecedents of science; the causes of scientific knowledge; and the nature of the groundwork of science. The author's position is summed up as follows: "Only through the conception of an active causative principle, underlying and pervading the material cosmos, together with the recognition of the dignity of human reason, empowered as it is to perceive self-evident, universal and objective truths, can we understand the groundwork of science and attain to a final and satisfactory epistemology".

Essentials of Psychology. By C. S. Buell. Boston: Ginn & Co., 1898. Pp. viii., 238. ($1.10.)

This is an elementary psychology for high-school students. It consists of twelve chapters, the text of which is interspersed with problems and exercises. After an Introduction, occupied mainly with the nervous system and its relation to the mind, come four chapters on the senses. These are quite good, in spite of minor slips and inconsistencies (pp. 34, 43, 62, 64, 88, 94). Perception is then defined as the localisation and material reference of sensation. Attention is the intellectual power of focussing upon selected objects. Memory, imagination and thought are the three representative powers of mind, developing in this order. The book ends with chapters upon feeling and emotion and upon will.

While the later chapters are interesting as practical essays, they are conceived entirely from the standpoint of the faculty psychology, and are but loosely related to the sense analysis which precedes them. Attention is divorced from will, interest from feeling. The reader will therefore gain from the book no connected idea of psychology as a scientific systematisation of facts.

Comparing the work with others with which it challenges comparison, the present writer would rank it somewhat above Ladd's, but considerably lower than Titchener's *Primer*.

Theories of the Will in the History of Philosophy. By Archibald Alexander. New York: Charles Scribner's Sons, 1898. Pp. viii., 357.

In the main this book is more occupied in giving *résumés* of the doctrines of leading philosophers than in tracing the general conditions which determine the evolution of thought concerning the Will. Greek theories are first discussed, with special reference to the antagonism between reason and passion. Then follow theories of the Will in Christian theology, in which the guiding points of view have reference to the prescience of God, the predestination of all events, original sin, and grace. This part of the work is especially interesting. From Christian theology the author passes to British philosophy from Bacon to Reid. Here, though the influence of theology is still marked, the purely psychological analysis of Will is the main feature. The following chapter discusses the development of continental views during the same period. As compared with British philosophy, purely psychological analysis takes a relatively subordinate position with these thinkers; their special doctrine of Will is more determined by their general metaphysical systems. This is still more the case with the German theories from Kant to Lotze, which are dealt with in the last chapter. On the whole the book is likely to be useful, though it follows too closely the plan of the ordinary History of Philosophy, and though the exposition in some places lacks lucidity.

The Philosophy of Greece considered in Relation to the Character and History of its People. By Alfred William Benn, Author of *The Greek Philosophers.* London: Grant Richards, 1898. Pp. x., 308. (6s.)

"The object of this book is to show how Greek philosophy exhibits, under an abstract form, certain ways of acting and of looking at things which characterised the Greek genius before philosophy itself began; how, having come into existence, its evolution was determined by the

history and geography of Greece; and how at every stage of that evolution it was influenced by the political, religious, and scientific culture of the Greek people; in a word, to consider philosophy—by which I understand a study of the most general relations between the world and human life—as a product not only of certain pre-eminent intellects, but also and above all as a product of the nation whence they sprang" (Preface). Mr. Benn is specially fitted for the task he has undertaken, and the philosophy of the Greeks lends itself to such treatment in a peculiar way. Fuller notice will follow. We need here only say that the book is very able and very readable.

Les Origines de la Psychologie Contemporaine. Par D. Mercier. Paris: F. Alcan; Brussels: O. Schepens, 1897. Pp. xii., 486. (5 fr.)

Prof. Mercier is Director of the École Saint Thomas d'Aquin and of the Institut Supérieur de Philosophie at the Catholic University of Louvain; and his book is naturally a contribution to Catholic philosophy. His main contention is that true philosophy consists in adhering to the fundamental principles of Aristotle and St. Thomas, and that the discoveries of modern science, and of experimental psychology in particular, will be found, if rightly interpreted, to contribute to the development of Neo-Thomism. The errors of modern psychology are traced back to Descartes and his conflicting doctrines of spiritualism and mechanism. From Descartes' spiritualism sprang an idealism which, under the influence of mechanism and sensualism, has resulted in the idealism characterised by agnosticism which prevails at the present day. As Descartes reduced psychology to the study of thought, so modern psychologists restrict their investigations to facts of consciousness. The study of metaphysics has been almost abandoned, and psychology is moving towards an idealistic monism. On the other hand, experimental psychology has begun to make rapid progress, and in this fact M. Mercier finds some hope for the future. After discussing the genesis of idealism and of the positive character which idealism assumed at the beginning of the nineteenth century, the author explains its inadequacy to solve the fundamental psychological problems, and proceeds to deal with the leaders of contemporary psychology. These are, in his opinion, Herbert Spencer in England, Fouillée in France, and Wundt in Germany. A long discussion of Mr. Spencer's views ends with the following remarks: "Spencer's metaphysics and his rational psychology in particular are characterised by this amalgamation of the various philosophical doctrines which emanated from Descartes and are diffused in the atmosphere of our century.... Spencer is a collector of ideas rather than the creator of a philosophy.... As for his doctrine of evolution, it is merely an analogy audaciously grafted on a hypothesis. . . . Every one will agree that in this vast conception there is neither science properly so called, nor true philosophy."

Having thus disposed of English contemporary psychology, M. Mercier turns to France and to Fouillée's theory of *idées-forces*. In Fouillée's *appétit* he finds an attempt at psychological unity and a vague apprehension of Aristotle's ἐντελεχεία; but here again idealism and positivism are predominant.

For Wundt there is more to be said. He is still enveloped in idealism; he has not been able to break his Kantian fetters or to free himself from metaphysical agnosticism; but he has the merit of declaring the reality of the data of experience, and in his doctrine of the will, though it is carried too far, he has made a stand against arbitrary *intellectualism*. "If Wundt could free himself from his idealistic and positivistic prejudices,

get rid of the false notion of substance which he has borrowed from Kant, and pursue in freedom the course which his personal researches indicate to him, he would be logically compelled to adopt the fundamental theories of Aristotle's psychology."

M. Mercier has set forth his own psychological doctrine in another work. In the present volume he contents himself with a chapter on "Psychology and Anthropology," in which he deprecates the arbitrary restriction which substitutes the study of the soul (*l'âme*) for the study of man as a whole. Three chapters are devoted to the criticism of idealism, mechanism and positivism, or agnosticism in metaphysics, and the concluding chapter deals with Neo-Thomism. In M. Mercier's opinion, the decadence of Scholasticism has been much exaggerated. Its revival in this century was brought about, not only by the need of combating the anti-christian philosophies of Germany and England, but also by the unsuccessful efforts made within the Church to find a refuge in Cartesian spiritualism or in ontologism. Since the Encyclical of Leo XIII., Neo-Thomism has made great progress within the Church. It has a prominent place in the teaching of the Catholic universities, and seven journals of Catholic philosophy have been founded since 1880. M. Mercier lays great stress on the importance of scientific and, in particular, of psycho-physical research, and charges all Catholics to meet their opponents by a diligent study of science, and a resolute adherence to Aristotelian and Scholastic philosophy.

The book is written for Catholics, and neither its arguments nor its conclusions are likely to commend themselves to readers outside the Church.

E. F. Stevenson.

La Famille dans les Différentes Sociétés. Par C. N. Starcke, Privatdocent à l'Université de Copenhague, Membre de l'Institut International de Sociologie. (Bibliothèque Sociologique Internationale, xvi.) Paris: V. Giard & E. Brière, 1899. Pp. ii., 276. (Broché, 5 fr.)

Dr. Starcke has already done excellent work on the primitive constitution of the family. The present book is ethical rather than sociological in its aim; but the author connects these two studies very closely. According to him we cannot know what life ought to be unless we understand what it really is and how it has developed.

The present work contains a full account of existing laws, customs and ideas concerning marriage and the family in the various nations of Europe, with sufficient indications of the changes which they have undergone in the course of history. In particular, the author brings out clearly the contrast between the modes of thought of the Latin and of the Teutonic nations. For the Latins, marriage is primarily an alliance between families, and the claims of the individual are with them subordinate. The Teutonic view is that marriage is primarily a social relation between individuals. Its essential purpose is the full development of the moral and intellectual life of the individual persons who enter into this most intimate of social unions.

It is the Teutonic point of view which Dr. Starcke himself favours. For him marriage is a means for self-realisation in the Hegelian sense. Thus his treatment of the question from an ethical point of view will be welcome and helpful to the prevailing English school of ethical thinking as represented by such writers as Muirhead and Mackenzie. The whole question of the position of woman and the transition which it is undergoing at the present moment is treated from this standpoint. No one can complain of a lack of chivalry in Dr. Starcke. He holds that women

under modern conditions are quite as well able to make their way in the world and in professional life as men. He is none the less of opinion that their more appropriate sphere is home life; but the reason is not any deficiency on their part as regards public life, but a positive capacity which they possess in a far higher degree than men of lavishing personal attentions. It is not because they are less fitted to face the world that they should prefer the home circle, but because they are more fitted for the duties of home life.

Dr. Stareke treats very fully the whole range of problems, moral and legal, connected with marriage and the family. We have not space to follow him here; we can only say that there is a great deal to be learned from his book, and that even where it is somewhat difficult to agree with him, he has much to say which is suggestive and valuable.

L'Éducation rationnelle de la Volonté; son emploi thérapeutique. Par Dr. Paul-Émile Lévy, Ancien Interne des Hôpitaux de Paris. Paris: Félix Alcan, 1898. Pp. v., 234. (4 francs.)

To educate the will in a given direction is to give to a certain idea predominance in consciousness which will make it efficient in determining conduct. The sole means of producing this result is concentration of attention on the idea. The special feature of Dr. Lévy's book is that he lays stress on certain peculiarly effective methods of attaining this end. He takes his cue from the power of suggestion in hypnosis and similar states. But the education of the will which he has in view is not education by external suggestion, but self-education by auto-suggestion. For instance, he recommends that the patient should withdraw into quiet and solitude, and then compose himself as if for sleep. At the moment when he is in the transition state between sleep and waking he should bring before his mind as vividly as possible the idea of himself as acting in a certain way, or as undergoing some change of bodily condition, and not merely the idea but the definite affirmation that he is going to act in this way or to undergo this change. Dr. Lévy says that he himself can pursue this method with success, and that he has found it efficacious in the case of many patients. Of course an idea dwelt on under these conditions will attain a controlling force and dominance simply because it has the field to itself, the mind being in other respects dormant. This procedure is not only an education of the will, but also in many cases a cure for bodily diseases. The general state of the organism depends to a very large extent on that most important member of the organism, the brain; and so far as this is the case Dr. Lévy's method supplies a means of altering the condition of the body; for according to the principle of psycho-physical parallelism, psychical change involves cerebral change, and cerebral change in its turn determines other organic states. Dr. Lévy gives a number of cases of such cures. Insomnia, tendency to fainting-fits, paresis, trance, trembling, various kinds of pain such as headache and toothache, disorders of circulation and respiration, want of appetite, constipation, etc., have yielded in his experience to treatment by auto-suggestion. Of course the efficacy of the treatment has definite limits, but it seems that it is capable of successful application in a large class of cases. Whatever may be the value of Dr. Lévy's results to the medical man, they are certainly very interesting to the psychologist.

La Notion de Temps d'après les principes de Saint Thomas d'Aquin. Par Désiré Nys. Williams & Norgate, 1898. Pp. 228.

The concept of time is at once amongst the most familiar and the most obscure of concepts. "What is time? If no one puts that question to

me, I know what time is. But if the question be put, I find that I do not know." So wrote St. Augustine. A complete study of the notion of time comprises two fundamental questions, the psychological question as to the genesis of the idea of time, and the ontological question as to the objectivity of time. Viewed from the ontological standpoint, the theory of St. Thomas, as set forth in his various opuscula, notably in the opuscula 'de tempore,' and 'de instantibus,' may be described as moderate realism. Time has at once its objective and its subjective character. Abstracted from continuous movement, time possesses in movement a real being. Nevertheless, movement is not time, nor can it become time without the concurrence of mind which breaks up its continuity, and reunites in a same whole the divers parts which it distinguishes there. Taken in its totality then, the concept of time designates a real, but essentially fugitive being, the present, and elements which, as such, have only an ideal reality, the future and the past. Hence the objective and the subjective character of time. Such, at least, is the theory of St. Thomas. In opposition to this moderate realism of St. Thomas stand, on the one hand, the idealistic and subjective theories which unduly depreciate, or even entirely suppress, the objective reality of time, and prominent amongst these are the theories of Kant, Leibnitz, Balmes, Descartes, Baumann, Locke, and Spencer; and, on the other hand, the theories characterised by an exaggerated realism, and among the better known of these are the theories of Gassendi, Newton, and De San. The earlier and longer portion of M. Nys' very able treatise is devoted to an exposition and defence of the system of St. Thomas. The latter portion explains the various rival systems, and criticises each in detail. M. Nys' criticism of the Kantian system seems to be particularly good.

Essai d'une Philosophie Nouvelle Suggérée par la Science. Par Léonce Ribert. Paris: Alcan, 1898. Pp. 562.

By far the greater part of this work is taken up with a naïve narration of the mythology of modern science, untroubled by criticism and with hardly a suspicion of the true nature of the problem which the sciences bequeath to philosophy. Its only novelty is found in the occasional introduction of a cosmological myth of the author's own (*e.g.*, p. 509), and in his substitution for the usual '*Force*' of an "infinite potentiality" (*virtualité*), described as a principle of activity and supposed to generate all things by its conjunction with 'Matter'. But such divergences are neither emphasised nor fully worked out, and the general impression left by the book is that its author has a mind of the type which in England finds full satisfaction for its intellectual needs and spiritual aspirations in the writings of Mr. Herbert Spencer. Accordingly M. Ribert, whose amiable character is plainly mirrored in his work, is exceedingly well pleased with his conclusions, and cannot conceive how any one could wish for anything more. Hence he is much distressed and puzzled by the symptoms of soul-sickness he detects around him, and by the pessimistic way in which the 'gospel of Science' has been received by many of the finest intelligences of France. His failure to understand why his nostrums should arouse only nausea in such minds and why people should talk about 'the bankruptcy of science,' sufficiently indicates his limitations. It should, however, be admitted that his claims are modest and that the preface stamps the book as *un ouvrage de vulgarisation*—a phrase which the English reader is unfortunately too often tempted to translate literally. Yet the style is good and the narrative flows in a smooth and sparkling stream of lucid French; only it will not be found navigable for ocean-steamships.

L'Illusion de Fausse Reconnaissance. Contribution à l'étude des conditions psychologiques de la reconnaissance des souvenirs. Par le Docteur EUGÈNE BERNARD-LEROY. Paris: Félix Alcan, 1898. Pp. 249. (4 francs.)

Treats of the not uncommon experience in which a situation or group of circumstances or events appears to a person as if he had already been confronted with them in the past. The main value of the work lies in the collection of eighty-six cases, thirty-six published previously to the present work, and the rest gathered by the author himself in answer to question-forms very carefully drawn up. Dr. Bernard-Leroy brings out very clearly the distinctive features of the illusion. He fails to find that it is dependent on any special bodily or emotional conditions. Various attempts at explanation are criticised and easily disposed of. Among these the author does not take account of the suggestion of Havelock Ellis that the false recognition is an inverted hallucination, in which the sensory centres "receive an actual external sensation in the feebler shape of a representation" (MIND, New Series, vol. vi., No. 22, p. 286). It is true that Havelock Ellis connects this with nervous fatigue in the subject, and Dr. Bernard-Leroy has apparently shown that this is by no means a frequent accompaniment of the illusion. None the less, it may well be that the true explanation is to be sought on some such lines as those suggested by Dr. Ellis. The assumption that the inverted hallucination is due to fatigue seems to constitute no essential part of his theory. The author's own explanation can scarcely be regarded as an explanation at all. He simply says that recognition is accompanied by a feeling which is difficult to analyse, and that this feeling sometimes arises abruptly when the experience with which it is connected has not existed before. This amounts to nothing more than a restatement of the fact to be explained.

System der Werttheorie. Band i., "Allgemeine Werttheorie, Psychologie des Begehrens". Band ii., "Grundzüge einer Ethik". Von Dr. CHRISTIAN von EHRENFELS, Professor der Philosophie an der deutschen Universität in Prag. Pp. xxiii., 277, viii., 270. London: Williams & Norgate, 1897, 1898.

This is a systematic treatise on the idea of Value, regarded as the Basis of a complete ethical theory. Some account has already been given in MIND of the point of view represented by the writer (see New Series, No. 16, pp. 425-449). The present work, however, is considerably more comprehensive than any of the previous discussions either by him or by Meinong, and in particular the bearing of the theory of value upon definitely ethical doctrines is more fully brought out than it has probably ever been before. Critical notice will follow.

J. S. M.

Principi di Psicologia Moderna criticamente esposti. Da A. FAGGI. Pp. iv., 134. Palermo: Alberto Reber, 1897. London: Williams & Norgate.

This book is the second part of Prof. Faggi's *Principles of Psychology*, the first part of which was published in 1895. It is not a manual of psychology, but, as its title announces, a critical exposition of certain leading principles. The author's object is to make students acquainted with the methods of modern psychology and its most important problems, and, especially, to show the application which has been made and that

which, in his opinion, can be made of psycho-physical parallelism and the law of association. Prof. Faggi anticipates a possible criticism by remarking that, since scientific analysis has made most progress in the region of sensations, he has necessarily devoted more space to this subject than to the higher functions of consciousness. The book is too short and written too much from the critical standpoint to be an exposition of the author's own views. It contains four chapters, or, rather, four separate essays on Time and Space, Association and Apperception, Feelings and Emotions, Perception and Self-consciousness. In each case Prof. Faggi indicates the nature and the difficulties of the problem he is about to discuss, states briefly the views of various psychologists, makes comparisons and raises objections and, to some extent, explains the theory which he himself prefers. The reader's attention is drawn chiefly to the psychology of Wundt, Külpe, Ziehen and James, and the differences between them are clearly brought out.

In a fifth and concluding chapter, entitled "Epilogue and Prologue," the author explains his general psychological attitude. The science of psychology, by the adoption of general principles, of which psycho-physical parallelism is the most important, has passed from the descriptive to the explanatory stage. Since all facts of consciousness are, as such, qualitatively diverse, the law of association can only hold good as a principle of psychological explanation if it is regarded as a manifestation of physical laws. Movement and sensation are irreducible and incommensurable. Consciousness is the limit of the *natural* knowledge of phenomena; and on this side there can be no science, but only narration and description. To say this is not to advocate materialism. Physiology is concerned with organic functions in general, psychology with only those which have a psychical correlative; and thus the two sciences overlap. "In spite of what Wundt himself may say to the contrary," Prof. Faggi remarks, "I maintain that the only scientific interpretation of his theory of apperception is the psycho-physical interpretation given by Külpe." The psycho-physical point of view is, in fact, the psychological point of view. Psychical processes are conditioned by material changes in the organism; but, since the opposition between matter and spirit is not real, but created by thought, the principle of parallelism is purely "regulative," and its interpretation has no scientific value. But the world of science is not the world of consciousness; and "psychical materialism," as Prof. Faggi calls it, so far from being inconsistent with idealism, is rather a starting-point from which to arrive at it. "For the exigencies of practical life we need the existence of the Absolute, but Science can do nothing for this need except ascertain its physiological and psychological conditions."

The book is clearly and concisely written, and should prove helpful and suggestive to students who have some elementary knowledge of psychology.

Received also :—

G. F. Stout, *Manual of Psychology*, vol. i. (The University Tutorial Series), London, W. B. Clive, 1898, pp. xii., 240. (4s. 6d.)

Annual Report of the Smithsonian Institution, 1896, Washington, 1898, pp. li., 727.

F. Pollock, *Spinoza, His Life and Philosophy*, second edition, London, Duckworth & Co.; New York, The Macmillan Company, 1899, pp. xxiv., 427. (8s.)

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H. Fierens-Gevaert, *La Tristesse Contemporaine*, Paris, Félix Alcan, 1899, pp. iii., 195. (2 fr. 50.)

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P. Salits, *Darstellung und Kritik der Kantischen Lehre von der Willensfreiheit, mit einem geschichtlichen Rückblick auf das Freiheitsproblem*, Rostock, 1898; London, Williams & Norgate, pp. 195.

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VIII.—PHILOSOPHICAL PERIODICALS.

PHILOSOPHICAL REVIEW. Vol. vii., No. 6. **J. Seth.** 'Scottish Mora Philosophy.' [Inaugural lecture at Edinburgh. The three stages in Scottish ethics: Hutcheson, Hume, Reid. Hutcheson combats the egoism of Hobbes and Mandeville. Goodness is inherently beautiful; the mark of virtue is disinterestedness; its essence is positive benevolence. Hutcheson "is the founder, in Scotland at least, of Scottish intuitionism in ethics". Hume combats the rationalism of Cudworth and Clarke. He tries to reduce all the deliverances of the moral sense to the single principle of sympathy (*Treatise*), though he finally gives up the attempt to account for sympathy itself (*Inquiry*). He furnishes the classic statement of English utilitarianism; his analysis of sympathy brought out Smith's theory of the moral sentiments; his ethics, like his metaphysics, was answered by Kant. Reid combats Hume, and establishes the common-sense philosophy. "When it left Reid's hands, the intuitional theory of ethics was finally stereotyped."] **E. P. Robins.** 'Modern Theories of Judgment.' [The English philosophers have insisted that we know reality (Locke, Reid, Bradley); the German, that knowledge is a mental construction, but that there is a reality behind the appearance of the world (Kant, Lotze, Sigwart). Bosanquet gives the synthesis: "he maintains that knowledge is of reality . . . and vindicates the synthetic activity of thought," holding that knowledge is an intellectual construction. This is the right view. "Mind is an activity of judgment from the first, and in its earliest experience knows reality, and is never the spectator of passive states as such."] **J. D. Logan.** 'Psychology and the Argument from Design.' [The three phases of modern teleology. God made the world out of nothing; made it out of crude matter, by an original act of design; created it by an act of design, and thereafter continually sustains its finality. Criticism leads to the conclusion that "both objectively and subjectively [there is] no conscious design apart from previous immanent, unconscious design; only novel situations and repeated experiences".] **H. M. Stanley.** 'Space and Science.' [Space is "appearance produced by the individual dynamic repulsiveness by which the thing consists and exists. . . . Everything makes its own spaciousness by its own offensive and defensive force." "The mutually exclusive nature of dynamism gives the space effect." A phenomenon of the inner and finite life of the infinite, it may, "as a general mode of the activity of the whole, be termed infinite".] Discussions. **J. M. Baldwin.** 'Social Interpretations: a Reply.' **J. Dewey.** 'Rejoinder.' Reviews of Books. Summaries of Articles. Notices of New Books.

PSYCHOLOGICAL REVIEW. Vol. v., No. 6. **G. T. W. Patrick.** 'Some Peculiarities of the Secondary Personality.' [Experiments on simple automatisms are needed. Characteristic of the secondary personality are suggestibility, fluency, lack of reasoning power, heightened memory, power of constructive imagination, vulgarity or mild profanity, profession of 'spirit' identity and supernormal knowledge, and, occasionally,

brilliant intuition. All these traits remind us of the primitive mind. Records of cases.] **J. R. Angell.** 'Studies from the Psychological Laboratory of the University of Chicago.' **J. R. Angell, J. N. Spray, E. W. Mahood.** 'An Investigation of Certain Factors Affecting the Relations of Dermal and Optical Space.' [(1) Skin lines (volar forearm) are underestimated as compared with horizontal visual lines. This underestimation decreases within limits with increasing pressure. (2) It is diminished by the introduction of temperature, becoming overestimation when the stimulus is distinctly hot or cold.] **M. L. Ashley.** 'Concerning the Significance of Intensity of Light in Visual Estimates of Depth.' [Monocular and binocular experiments, with simple and ingenious apparatus. Intensity "has been found of marked importance, even where accommodation, convergence, size of retinal image and disparateness of retinal images could enter to oppose it".] **F. B. Sumner.** 'A Statistical Study of Belief.' [Results of questionnaire of twenty-five topics, covering 'nearly every general class of subjects upon which the average person forms opinions'. Results: a graded arrangement of beliefs is possible and real. Characteristic differences appear between the sexes, and between those who have and those who have not had psychological training.] **G. M. Stratton.** 'A Mirror Pseudoscope and the Limit of Visible Depth.' [Description of a simple and practical mirror pseudoscope. Limit of visible depth is at least as remote as 580 m. The inequality of retinal impressions is here 24″; points have never been distinguished when separated by less than 30″. The present result is due to the persistent efficiency of subliminal motives (visual images and orbital sensations).] Discussion and Reports. **H. Muensterberg.** 'The Psychology of the Will.' [Defence of *Die Willenshandlung* against Pfaender and A. Seth.] **E. Thorndike.** 'What is a Psychical Fact?' [Against the position of Muensterberg and Royce that the mental fact is individual and incommunicable, and therefore unmeasurable.] **A. C. Armstrong.** 'Consciousness and the Unconscious.' [Mental life is a thing of degrees in the scale of complication. Hence we should do well to speak of psychoses of the first, second, etc., power or potence.] **E. E. Slosson.** 'A Case of Retarded Paramnesia.' **E. A. Kirkpatrick.** 'Memory and Association.' [Comment on Miss Calkins' Wellesley study.] **J. McK. Cattell.** 'The Psychological Laboratory.' [Critique of Titchener, French and Scripture.] Psychological Literature. New Books. Notes.

Mon. Suppl., No. 7. **W. Lay.** 'Mental Imagery, Experimentally and Subjectively Considered.' [A somewhat rambling and unsystematic paper, whose chief value lies in a number of acute introspective records scattered through it. The author uses 'mental imagery' in a sense which excludes active imagination, memory and after-image. He performed five sets of experiments. (1) Passages were read aloud to college classes, and by them reproduced; visual imagery proved to be the chief means of reproduction, the auditory coming in 'to help' when the visual did not arise. (2) Questionnaire submitted to artists and sculptors; no extraordinary visualising power found—"some painters seem to have the imagery developed but little". (3) Consonants were counted and classified in passages from Tennyson, Browning, Swinburne, etc. (4) Images aroused in the author's mind by the reading of Tennyson and Browning were counted and classified. (5) Introspective record, extending over two years (2500 images): visual, 57·4 per cent.; auditory (including words), 28·76 per cent.; smell, 5·88 per cent.; taste, 0·58 per cent.; temperature, 2 per cent.; touch, 3·84 per cent.; organic, 1·1 per cent.; motor ('internal touch'), 0·32 per cent.; emotive, 0·12 per cent.;

pain, 0. The high percentage of olfactory images is noticeable. No evidence is brought for the existence of the emotive type: the single instance offered tells directly against it. There follow an analysis of the writer's word imagery, and a historical note on the literature. A final section criticises the questionnaire method; emphasises the value of imagery, as our means of realising meaning in symbols (words), and as a source of pleasure in reading poetry; and raises the questions of image training, and of discrimination of mental types.]

American Journal of Psychology. Vol. x., No. 1. **L. W. Kline.** 'The Migratory Impulse *v.* Love of Home.' [A good, but unnecessarily long paper. Introduction: factors of psychical differentiation are those inherent in the life-principle, and the cosmic and social. Example: relations of life to temperature shown by experiments on tadpoles. Questionnaire returns; attunement of life to cosmic and social forces has led to a rhythmisation of the life processes. Chapter i., Migration of Animals. Summary of observations and theories. Chapter ii., Migrations of Primitive Man. Ethnological views: illustrations of planomania. Results: animal migration is determined by the procreative function, modified by cosmic forces; human migration by more complex conditions,—climatology and the cosmic periodicities of the procreative function playing a large part. Chapter iii., Love of Home. Elements analysed from questionnaire returns. Conclusion: the migrant is cosmopolitan, variously interested, plunged in daring and speculative pursuits; the lover of home is provincial, plodding, timid, conservative.] **E. A. McC. Gamble.** 'The Applicability of Weber's Law to Smell.' [A strong piece of work, whose condensation and reserve contrast favourably with the foregoing. Work upon thirteen subjects, with thirteen liquids and seventeen solids, by Zwaardemaker's olfactometric method: measure is amount of odorous surface exposed, time of exposure may be disregarded, diffusion-rate of vapour is under control, subject's breathing is self-regulating. Method of just noticeable differences employed, and tested by minimal changes and right and wrong cases. Constant errors: adhesion, exhaustion, movement, unmeasured increment of stimulus. Results: the difference limen was $\frac{1}{3}$ in 36 per cent. and $\frac{1}{4}$ in 26 per cent. of all determinations. It was $\frac{1}{2}$ in 12 per cent., $\frac{1}{3}$ in 12 per cent., more than $\frac{1}{2}$ in 5 per cent., and no less than $\frac{1}{4}$ in 9 per cent. It follows that the law applies to smell, and that the difference limen lies between $\frac{1}{3}$ and $\frac{1}{4}$.] **E. B. Titchener.** 'Minor Studies from the Psychological Laboratory of Cornell University,' xvii. **D. R. Major.** 'Cutaneous Perception of Form.' [Work with open angles, triangles, circles; filled triangles and circles. Surfaces tested—tip of tongue, tip of finger, lips—rank in that order. Open circle is most easily, filled circle least easily cognised. Liminal open circle has a diameter of about 2 mm.] Psychological Literature. Correspondence. [Lukens on E. Gates' Laboratory.] Notes and News.

Revue Philosophique. January, 1899. **F. Le Dantec.** 'Les Néo-Darwiniens et l'hérédité des caractères acquis.' [A long article passing in review the various theories of human generation which have been propounded. Those of Buffon, Darwin and Weismann are condemned as being lineal descendants of the old encasement theory. The writer supports the hypothesis advanced by the bio-chemical school.] **E. Boirac.** 'Les Phénomènes Cryptoïdes.' [The central postulate of human science is that things exist in order to be known. Up to Descartes' time it was generally held that the senses are adequate to give us a complete knowledge of things. This belief is not yet dead. We still regard 'phenomenon' as synonymous with 'natural fact' or 'event'. Science,

however, is gradually reverting to the Baconian distinction between 'ostensive' and 'clandestine' instances. Two sets of causes have drawn attention to the latter: (1) the extraordinary discoveries of the latter half of the century, *e.g.*, Pasteur's discovery of microbes, the Rontgen rays; (2) influence of the philosophical thought of Descartes, Leibnitz and Kant. The rest of the article is devoted to an examination and classification of the said 'cryptoid phenomena'.] **A. Schinz.** 'Le Positivisme est une méthode et non un système.' [Object alike of philosophy and of science is explanation. We *explain* a phenomenon when we determine its cause or causes, meaning by 'cause' necessary antecedent. Two kinds of causal relation are conceivable: (1) between phenomenon and phenomenon; (2) between the absolute and phenomena. (1) is 'natural,' (2) 'metaphysical'. Corresponding to these are the positive and metaphysical methods. The former alone can give us true knowledge, but our ignorance often forces us to use the latter.] Revue Critique. Tolstoi et la question de l'art. Analyses et comptes rendus, etc. February, 1899. **J.-J. van Biervliet.** 'L'homme droit et l'homme gauche (1).' [The writer having been led to investigate sensibility of right and left side respectively and concludes that there are two distinct normal asymmetric types—'l'homme droit' and 'l'homme gauche'. The former is the more frequent; in the latter the left hand is not always the more adroit but it is the stronger, and the sensibility of the sense organs on the left side of the body is more acute than those on the right. The rest of the article consists of a detailed examination of the *motor system* of these two types.] **Th. Flournoy.** 'Genèse de quelques prétendus messages spirites.' [An analysis of two cases of "automatic writing," in both of which the writer was deceived; in both cases the suggestion can be explained as coming from the sub-consciousness of the individual writing; hence to assign it to any other cause is to violate the methodological principle prohibiting the unnecessary multiplication of causes.] **P. Tannery.** 'La Stylométrie: ses origines et son présent.' ['Stylometry' means the statistical analysis of peculiarities of style. Employed by Prof. Lewis Campbell with a view to discovering the chronological order of Plato's dialogues. Name coined by M. Lutoslawski. This method may have a future, but as hitherto formulated is too vague to be used scientifically.] Revue générale. Les Travaux Recents de Psychophysique. Analyses et comptes rendus, etc. March, 1899. **H. Bois.** 'La Conservation de la Foi (1).' [Answer to 'La Dissolution de la Foi,' by M. Dugas in September number of the Review. Starts with exposition and criticism of 'religious formalism' given by M. Dugas. The supporters of this theory maintain that we must distinguish two elements in religion: (1) its form or spirit—which is eternal; (2) its matter or content—which is temporary. Hence, from this point of view, all religions are false and all are true. Essence of all is the adoration, under the name of God, either of the order of the Universe, or the Reason which witnesses to itself all round us, or human reason. M. Bois entirely rejects theory. Truth is never relative. God is not a category, but a concrete person, known by us as concrete persons, and not by any special religious faculty. Miracles must be conceived as the special operation of the free personality of God making use of, though not violating, natural laws. Catholicism is against reason; Protestantism is conformable to it.] **A. Fouillée.** 'La Psychologie Religieuse dans Michelet.' [Reviewing Michelet's *Le Prêtre, la femme et la famille* and *Les Jesuites* writer points out that he rightly apprehended the importance of the psychological laws of 'habit' and 'suggestion' in forming character, quotes with approval his exposition of the dangers of auricular confession, his conception of the vocation of

woman, and his attack on the Jesuits. Goes on to consider present situation of Catholicism which is characterised by a change of attitude towards (1) philosophy, (2) socialism.] **J.-J. van Biervliet.** 'L'homme droit et l'homme gauche (II.).' [The asymmetry of the *nervous system*.] Revue générale.' Les travaux récents de psychophysique (conclusion). Analyses et comptes rendus, etc.

Revue de Métaphysique et de Morale. September, 1898. **E. Chartier.** 'Commentaire aux fragments de Jules Lagneau.' [This concluding article assigns to metaphysics three guiding ideas. First, the idea of truth; that which no mind can refuse to admit, that which is necessary. Secondly, the idea of a nature that is thinking, absolute, universal and necessary. The third belongs to method, the idea of *reflective* analysis. This is described as the search for necessity by simple and clear definitions and rigorous demonstrations, in short, mathematics in an extended sense.] **A. Lalande.** 'Le langage philosophique et l'unite de la philosophie.' [After expounding the excellence of the end, the unity of philosophy, and assigning the causes of the existing discord, the author is sanguine enough to suggest as the means towards realising his ideal (1) individual research animated by the love of unity; (2) permanent collaboration, say by academies and societies; (3) international conventions; (4) reconstruction of the system of education. The functions of a philosophical society such as would carry on this good work are the revision of the philosophical vocabulary, and the publication of an elementary course of Philosophy. The terminology should be reformed by definitions, both historical, to give the meanings employed by the leading writers, and dogmatic, to fix future use.] **Élie Halévy.** 'Quelques remarques sur la notion d'intensité en psychologie.' [Intensity appears in mental phenomena attached to sensation and to belief. Intensity of belief is measured by a fraction whose numerator is the number of reasons for the belief, and whose denominator is the total of reasons for and against. Though the mathematical measure is thus limited by the two extremes 0 and 1, the psychological value may range from nothing to the indefinitely great. This arises from the infinite number of conditions determining everything concretely given in our experience. Hence we conclude that intensity of belief is not a simple subjective element, but complex, the result of a reflective act. With regard to intensity of sensation, though a confused state of consciousness, yet psycho-physics measures it and assigns to it its laws. The well-known law connecting increment of excitation with increment of consciousness has its limitations and exceptions. The analogy between sensation and belief, in intensity, may be illustrated thus: If in a central telegraph station the wires bring in one after another intelligence that a certain event has happened, the belief of the receiver of the messages in the truth of the news rises rapidly to the highest pitch of intensity. So, too, in sensation; its intensity increases with the number of conditions of production involved. Thus intensity of sensation is also removed from the number of simple mental elements. The lesson drawn, in conclusion, is that the true method of psychology is to decompose, to analyse the synthesis already made by intelligence.]

Revue-Néo Scolastique. No. 19. **C. Besse** ('Léon Ollé-Laprune,' *suite et fin*) decides that the philosophy of Ollé-Laprune is essentially a will-philosophy. Will and action lie at the root of everything. There is an element of will in the operations of mind. When I perceive, I attend. But what is attention but an act of will? When I judge, I issue from uncertainty and hesitation; I decide between things compared. How is this possible without an act of will? Much more is will needed in the

higher functions of knowledge. Very few things are evident and these are chiefly of the ignobler kind. We must affirm then more than we see. To affirm without sufficient reason more than we see is an act of rash credulity. But to affirm more than we see, with good reasons for our belief, is an act of wisdom. It is not, however, an act to which nature constrains us. It postulates the presence of good will. **E. Pasquier** ('Les hypothèses cosmogoniques,' *suite et fin*) discusses the hypotheses of Faye, Ligondès, and Braun. He believes that in some respects the hypothesis of Faye is superior to that of Laplace, and agrees with Wolf as to the modifications which Laplace would introduce into his hypothesis in the actual state of science. **M. de Wulf** ('Qu'est-ce que la Philosophie scolastique?' *suite et fin*) who, in a previous article had rejected various extrinsic definitions of scholasticism, now sets aside as false, or at least incomplete, certain intrinsic definitions of that system. **A. Thiéry** ('Qu'est-ce que l'art?') sets before us the views on art that have been lately published by Count Léon Tolstoi. Tolstoi identifies beauty with pleasure. To consecrate art then to the service of beauty is to consecrate art to the service of pleasure. But this is to assign an ignoble end to art. Art must then be emancipated from the service of beauty. What then is the aim of art? It is "the realisation of the fraternal union of men". This is the only true aim of art. But if art be the means of uniting men, it must appeal not to a class, but to all. It must be simple then, so that he that runs may read it. What, then, of the Ninth Symphony of Beethoven? "It is not a work of art," boldly answers Tolstoi.

L'Année Psychologique, iv. Paris: Schleicher Frères, 1898. Pp. 849. The original papers, twenty-five in number, occupy rather more than half of the volume. The first twelve contain a report of two series of experiments by **A. Binet** and **N. Vaschide**, which have for their aim (1) the measurement of various physical properties of the individual, (2) the investigation of the correlations of these properties. It is explained that the latter investigation has hitherto received but little attention as compared with the former, and the authors do not profess to have made more than a first essay in it. The experiments were carried out with two groups of subjects, the first composed of boys in a primary school (average age thirteen), the second of youths in a training college for teachers (average age seventeen), and there were about forty subjects in each group. In a preliminary paper the authors explain their reasons for selecting the primary school as the sphere of their experiments. It has various drawbacks which limit the character of the experiments, but, on the other hand, it has the two great advantages of numbers and discipline. The importance of these two points is illustrated by an amusing description which the authors give of their troubles with voluntary subjects in a private gymnasium. The following notes may serve to give some indication of the questions investigated and the methods used. The first set of experiments in the primary school was directed to testing the muscular strength and endurance of the boys, a number of different tests being employed. In connexion with the test by means of hand-pressures, the authors find different types of endurance, *e.g.*, a type in which the force exerted remains fairly steady, a type in which it diminishes continuously, a type in which it diminishes rapidly and then remains steady. The influence of rivalry is also studied, and, finally, the various tests are correlated with a view to determining which is the most representative. The second set of experiments, "*épreuves de vitesse*," includes the following tests: Reaction times, both simple and discriminative; running; rapidity of marking a series of dots on paper. As might be expected, the results of experiments so different in character

show little connexion with each other. In the reaction experiments, the authors emphasise the importance of observing the subject during the experiment. For instance, in the case of a subject who has to check a tendency to anticipation, the reaction time may be lengthened if the signal comes just when he is thus restraining himself. The next set of experiments is concerned with respiration and circulation. In the circulation experiments, the authors bring out the interesting result that, unlike such exercises as running, which accelerate circulation, a brief and intense localised effort diminishes it quite appreciably. After a summary of various anatomical measurements, there follows a paper in which the authors indicate briefly the extent of the individual differences revealed in the various experiments. And the final paper of the first series deals with the correlations of the various tests taken together, two additional tests of a more intellectual character being included, one a memory test, the other that of the scholar's place in class. Two methods are employed in the study of the correlations of the tests. The first is that already employed in correlating the different tests within each set of experiments. It consists in classifying the subjects into four groups determined by some standard test (five such tests are taken), and then comparing the results of other tests in relation to this classification. The other method (*méthode du rang*) is based on a comparison of the places held by the same subject under different tests. In dealing with a group of subjects, it may be employed to determine either the mean of individual differences of place or the difference between the average places of the group under different tests. The method, however, is not here applied with reference to standard tests, but with reference to what the authors call a "*classification globale*" of the scholars. This classification is arrived at by adding together the places held by the individual scholar under all the physical tests (the more intellectual tests are excluded), so that the scholar whose sum of place-marks is lowest stands at the head. The scholars are then, by means of this classification, divided into four standard groups, and the method in both its forms is applied with reference to these. The interesting result is brought out that two of the respiration tests are decidedly the most representative for the complex of physical qualities investigated. The series of experiments carried out with the pupils in the training college was similar in character, and the parallelism gives an interest to the second series. Of the remaining papers, several of those written by the authors above named are more or less directly connected with the foregoing experiments. In two papers the authors examine possible sources of error in certain instruments used, *viz.*, the pressure instrument or dynamometer and Mosso's ergograph. In a third paper they describe a new and improved form of ergograph in which a spring is substituted for the weight used in Mosso's instrument. In other papers they study some of the physiological aspects of the experiments. For instance, in a paper on muscular contraction, they find a rather striking difference in the sorts of fatigue produced by those experiments with the ergograph, which are directed to testing '*force*' and '*vitesse*' respectively. In the former experiment (in which a heavier weight is used), fatigue is expressed in an inability to contract the finger which lifts the weight ; in the latter experiment (in which a lighter weight is used), fatigue is expressed in precisely the opposite effect of a state of contraction. Two other papers by the same authors separately deal with certain aspects of the effect of intellectual work on bodily functions. A final paper (by **B. Bourdon**) gives an account of recent work upon the visual perception of depth. The second half of the volume is occupied by the Bibliography, which includes classi-

fied notices of recent works and a classified Index of recent publications and articles.

L'Année Philosophique (1897). Paris: Felix Alcan, 1898. Pp. 316. The first article, by **M. Renouvier**, is entitled 'De l'idée de Dieu'. The author criticises the first principles of various religious and philosophical systems, and his conclusion is that the principal doctrines of the theology of Thomas Aquinas "have exercised an influence over modern Philosophy, down to the time of Kant, upon the *a priori* school, in all that relates to the Divine Nature. This Philosophy (*i.e.*, that of Aquinas), essentially infinite and predeterministic, has overwhelmed *the positive idea* of God by definitions of attributes and powers which are peculiarly appropriate to the *realistic idea of the Universal*." The same neglect of the "positive idea of God" continues after Kant, and **M. Renouvier** has some caustic criticism of Hegel, Schopenhauer, and Spencer. With regard to the latter, **M. Renouvier** forcibly contends that "the proof of the Relativity of Knowledge is, in precise terms, consecrated to the establishment of a certain number of Absolutes" (p. 27). Therefore, the dominant note of Philosophy during the present century is, either explicitly or implicitly, the maintenance of the Absolute, which is declared to be mere "latent Atheism". In reference to this, **M. Renouvier** speaks in no measured terms of Hegel. "What an infirmity of outlook, compared to the teaching of the Ancients! For God to reach His accomplishment in man, in the person of a philosopher—in that of Hegel, perhaps! Truly this is to give the idea of God a beggarly realisation!" (une réalisation trop pauvre). Passing the many historical difficulties in **M. Renouvier's** criticism, one, not unnaturally, expects some remarkable excellence in "the positive idea of God," which is described as the supreme realisation of the ideal of personality—intelligence, will, design, and moral perfection. But how is the objectivity of this idea to be demonstrated? Partly, it would appear, as being not repugnant either to reason or to experience; partly, again, by remaining the only possible supposition after the disproof of rival hypotheses. **M. Renouvier** has not left himself sufficient space to do justice to his demonstration, and therefore he is scarcely justified in claiming that it is "rigorously logical". He gives us an ideal of personality or of a higher self, but this is a far different result from that promised by the title of his article. It is by no means easy to write, within brief limits, a review of a review, for, nominally, this is the nature of the second article—that entitled 'La Philosophie de M. Paul Janet,' by **M. L. Dauriac**—indeed, it would be impossible, in this instance, were it not that the writer uses the recent appearance of a work by M. Paul Janet as a text for an interesting discussion of the present position of the followers of Cousin, or, as he calls them, the ecclectics. Modern Ecclecticism does not merely hold that "all systems are right in what they affirm and wrong in what they deny," but also, owing to its historical connexion with Reid, it acknowledges the primacy of Psychological introspection, and it is therefore met by the consolidated opposition of all systems. Further, in admitting Belief, thinkers of this school, as **M. Dauriac** forcibly puts it, turn their backs upon Ecclecticism, while if, on the other hand, they hold fast to their Psychology, they must abandon the hope of establishing a Metaphysic proper. In discussing the ecclectic position with regard to the relation of Philosophy to other branches of knowledge, **M. Dauriac** introduces an important digression as to whether Philosophy is "a kind of abstract literature," remarkable for the prominence given to style, and the assertion that a comprehensive philosophical system is, in a peculiar degree, affected by great waves of emotion, which accelerate

the flow of thought, wherefore it is that "great philosophers are generally great writers" (p. 61). In reference to the relation of Philosophy to Theology (which M. Janet characterised as so close that hostility to Theology is treason to Metaphysics), **M. Dauriac** shows that Theology is taken in a narrow sense, as excluding all non-Christian religions. In this connexion, he makes a somewhat striking remark concerning the discordant elements in Ecclecticism, namely, the influence of the Cartesian spirit, which is Catholic, and the Scottish, which is Protestant—a contrast developed with considerable fulness. Under the heading of The Relation of Philosophy to Psychology, **M. Dauriac** urges, with great force, that a fact of consciousness or natural necessity is not, and cannot be, accepted as a principle. **M. Pillon's** contribution to his 'Evolution de l'Idéalism au XIII.e Siècle' is entitled 'La Critique de Bayle: Critique de l'Atomism Épicurien,' and one cannot fail to note how little **M. Pillon** has left himself to say of Bayle's criticism of Epicurean Atomism—in fact, only a few pages are devoted to Bayle's objections, the bulk of the article being occupied with a statement of the general Epicurean position. The most important portion is that dealing with the "swerving aside" of the Atoms, which comes into contrast with the Idealism of last century as a contrasted yet not wholly dissimilar tendency. From the contingency involved in the swerving aside of the Atoms, the Epicurean developed Free-Will; while, on the contrary, the Idealist deduces contingency from freedom. At the same time, it is difficult to see how this contrast, or, indeed, the statement of Epicureanism, applies to **M. Pillon's** subject, since Bayle only accepted certain portions of that theory under a misapprehension, and it would appear that Epicurean Atomism, not being understood during last century, could have little to do with the development of thought. Yet **M. Pillon's** present contribution is of distinct value as an appendix to the preceding chapters, in giving additional information, which, if incorporated earlier, would have involved lengthy digressions. There is no doubt **M. Pillon** has done good work in drawing attention to Bayle's constructive work, but its importance is exaggerated by being brought too near to Leibnitz and too far from Descartes, and thus the true historical perspective is in danger of being lost. When allowance is made for Bayle's ecclectic tendencies, it would appear that his position should be moved forwards or backwards in the historical sequence, according to the aspect of his subject a writer has before him at the moment. He marks a development of Cartesianism opposed to that of Spinoza, who placed the centre of gravity in the supreme substance, whereas Bayle is inclined to place it in the two subordinate ones. Thus he emphasises rather than surmounts Cartesian Dualism, and therefore his "spiritualism" must be held to be less, not more, than that of other Cartesians. If, on the other hand, we look back from the individualism of Philosophy, immediately prior to Hume, we see in Bayle's Plurality of animated atoms an advance upon his contemporaries; but it may be doubted whether this advance falls within the development of Idealism; rather, despite the superficial resemblance to Leibnitz, the many realistic characteristics of the Atoms (especially when brought into juxtaposition with the Locke-Worcester Letters and Voltaire's popularisation of Locke) would tend more in the direction of realistic than of Idealistic Individualism.

Zeitschrift für Psychologie und Physiologie der Sinnesorgane. Bd. xix., Heft 1. **T. Lipps.** 'Tonverwandschaft und Tonverschmelzung.' [Polemic against Stumpf's theory in the *Beitraege*. Degree of fusion for Stumpf is not really degree of approximation to a (numerical) unity of auditory impression, but degree of possibility or ease of such

approximation. Proof by appeal to unmusical persons, and to consonance of successive tones. But if consonance or degree of fusion is 'fusibility,' that relation of tones to one another which conditions fusion, there need be no quarrel between the two theories. Stumpf's synergy, invented *ad hoc*, makes way for the hypothesis that consonance is an unconscious coincidence manifesting itself in conscious satisfaction. Detailed discussion of Stumpf's counter-arguments.] **W. von Zehender.** 'Die unbeweisbaren Axiome.' [We learn the axioms in childhood; we accept them later because of their invariable fulfilment. They are 'apodictically' demonstrable, *i.e.*, capable of a *demonstratio ad oculos*, and only logically indemonstrable. The meaning of every word depends on an implicit judgment of invariability.] **A. Poetsch.** 'Ueber Farbenvorstellungen Blinder.' [Introspective record, with comparisons, by a subject blind from her third year. Colours remain as memory images, with well-marked affective differences. There then occurs a transference of them, by feeling association, to other contents. Conscious memories of coloured scenes are wanting, and surrogate ideas take their place. Clangs are most easily associated with the colour-images; pressure holds second place; temperature associations are rare, and movement associations unknown to the writer. Smell may connect with colour through touch; taste associations are doubtful. There are great individual differences among the blind in the matter of colour images; many combat them of set purpose, as useless in practical life.] **J. von Kries.** 'Ueber die anomalen trichromatischen Farbensysteme.' [Experiments to show that the anomalous trichromatic systems are not explicable as due to unusually intense and widely extended pigmentation. In the two cases reported, no weakness of the colour sense was found.] Literaturbericht. Bd. xix., Heft 2 und 3. **S. Witasek.** 'Ueber die Natur der geometrisch-optischen Taeuschungen.' [Attempts, not to give a new explanation, but to bring out the essential difference between the 'psychological' and the 'physiological' modes of explanation. Critique of Wundt, Einthoven, Stoehr. The judgment hypothesis (psychological explanation): neither the judgment of comparison nor that of designation (the two forms involved) is adequate to the facts of illusion. The sensation hypothesis (or perceptual idea hypothesis: physiological explanation), and its relation to the apprehension of two-dimensional space. Experiments: Stereoscopic examination of Zoellner's illusion; the question of subliminal displacements. Result: This and cognate illusions are 'physiological,' not 'psychological,' in origin.] **J. von Kries.** 'Kritische Bemerkungen zur Farbentheorie.' [Criticism of recent papers by Hering, Hess and Tschermak.] **W. von Zehender.** 'Vernunft, Verstand und Wille.' [Reason, through the mediation of sense, furnishes us with knowledge; understanding discovers likenesses and differences, and points them out to reason. Will is the executive of both faculties, and is shaped by experience. Illustration from the child's acquisition of speech, and of the power to read and write.] Besprechung. **T. Ziehen.** 'Kritischer Bericht ueber wichtigere Arbeiten auf dem Gebiete der Physiologie des Centralnervensystems der Wirbelthiere.' Literaturbericht.

Zeitschrift für Philosophie und Philosophische Kritik. August, 1898. **Rudolf Eucken.** 'Die Stellung der Philosophie zur religiösen Bewegung der Gegenwart.' [This has already appeared in French in the *Revue de Métaphysique et de Morale* for July, 1897.] **H. Siebeck.** 'Die Willenslehre bei Duns Scotus und seinen Nachfolgern.' [A plain historical account of the teaching of the School on the will and its freedom during that period which is miscalled "the decline of Scholasticism".

Notwithstanding the numerous passages suggestive of modern thought, Prof. Volkelt avoids all such comparisons, giving only the data for the thesis that the germs of our modern doctrines are to be found in the teachings of Duns Scotus, Occam, and Buridan. The essay represents an immense amount of reading.] **Johannes Volkelt.** 'Beiträge zur Analyse des Bewusstseins.' [The distinguishing (and misrepresented) mark of sensation is trans-subjectivity,—the seeming independence of consciousness, the "beyondness" always present in sense-impressions. Spencer violates his own empiricism in ascribing to sensation originally a meaning in inner consciousness only, and treating its apparent independence as a gradual growth. In *experience* sensation is never merely internal, nor of an alleged growth of the illusion can we have experience. Further, sensation prior to or without this trans-subjectivity would no more be sensation than a triangle would continue a triangle if a side were removed. On the other hand, there must be no confusion with Natural Realism; where Hamilton (or German equivalents) say the non-ego *is* given, the purely psychological position here maintained is that the non-ego *seems* to be given in sensation. This illusion may be termed the irrational element in consciousness in the sense that human finiteness cannot conciliate the illusion with reason. Thus, in opposition to the teachers of Parallelism, consciousness appears as a manifold of simple, qualitatively different, underivative functions. The conclusion treats of the connexion of the trans-subjective element with the ideas of space and of the external world.] **Gregor von Glasenapp.** 'Duplicität in dem Ursprung der Moral.' [On the one hand, the rational element of morality lies in the idea of justice and retribution; on the other hand, above and beyond reason, is the astounding fact that moral actions are performed regardless of recompense, regardless of self-interest. The article traces the influence of this second constituent in the religions of the Greeks and eastern nations and in Christianity.]

Vierteljahrsschrift für Wissenschaftliche Philosophie. Jahrg. xxiii., Heft 1. **J. v. Kries.** 'Zur Psychologie des Urteils.' [The author starts with his distinction between real and relational judgments, which corresponds closely with Hume's distinction between relations of ideas and matters of fact. Each of these classes of judgment involves a distinctive consciousness of validity. The object of the present article is to distinguish further varieties of the validity-consciousness, as they occur in the manifold processes of actual thinking, and to connect these with the main logical types of judgment. The article is interesting and important, but its value lies in detail which cannot be reproduced in a summary.] **E. Posch.** 'Ausgangspunkte einer Theorie der Zeitvorstellung, I.' [Discusses the nature of past time. When we say that something is past, the meaning is always that some quality in a group of qualities has ceased to belong to that group. Pastness is the non-existence of what is past.] **P. Barth.** 'Die Frage des sittlichen Fortschritts der Menschheit.' [Disputes the thesis of Buckle that ethical principles and ethical sentiments are unalterable. There is a progess in the direction of recognising the autonomy of the individual. We must distinguish between the development in the nature of ethical principles and sentiments, and the intensity of the controlling influence which they exercise under given social conditions. This controlling influence, which may be identified with conscience, shows a more or less regular rise and fall. The present period is one of decline, but there is good hope for the future, based largely on the help to be expected from science and in particular from sociology.] Besprechungen, etc.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—PHILOSOPHICAL TERMINOLOGY (I.).[1]

By Dr. Ferdinand Tönnies.

(*Translated by* Mrs. B. Bosanquet.)

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PREFACE.

The theme for the Prize Essay runs as follows:—

"The causes of the present obscurity and confusion in psychological and philosophical terminology, and the directions in which we may hope for efficient practical remedy".

In explanation of the theme was added:—

"The donor of the prize desires that general regard be had to the classification of the various modes in which a word or other sign may be said to possess 'meaning,' and to corresponding differences of method in the conveyance or interpretation of 'meaning'. The committee of award will consider the practical utility of the work submitted to them as of primary importance."

[1] The Welby Prize of £50 was awarded to this admirable essay by Dr. Ferdinand Tönnies of Hamburg (Editor, G. F. S.).

The author of this essay has noted that both in the theme itself and in the explanatory note he is called upon to investigate anew the nature of signs in general and of words in particular. He considers himself all the more justified in this course that in former days several of the most influential philosophical authors, with the same object of removing the obscurity and confusion of terminology, considered it uniformly necessary, in the same way, to give a thorough account of the nature and origin of verbal meanings in general.

But the present author believes that by his determination and division of the concept "Will," more especially by distinguishing the forms of a social will, he provides a better basis for such an account.

The "practical utility" of this contribution he finds,—in addition to the fact that every deep inquiry into important problems may be considered useful,—in that it aims itself at promoting the end in question, *i.e.* unanimity concerning concepts *and* concerning the expressions devised to denote them. For with a view to this end he holds it to be indispensable to create or confirm for thinkers, especially for thinkers at the beginning of their career, a clear and strong consciousness of their *power* over their material, of their free disposal, not only of sounds and other signs for the *notification* of concepts, but also of ideas for the *formation* of concepts. Owing to the darkness and inadequacy of the concept which is usually connected with the word "will," this "opening of the door to choice" invariably leads to the absurd conclusion that *groundless*, *i.e.* irrational, *caprice* is to reign. As if in giving a man free disposal over a large *property*, I thereby intended to convey to him that he should waste his property or lay it out in a foolish manner. No doubt I give him the *right* to do so, but I give him *also* the right to the *wisest* disposal, division and determination of every part of it, and if I have any influence over his will I shall teach him to dispose of his means according to clearly conceived *ends;* and if I can further influence him in choosing his ends I shall teach him to aim at living as far as possible like a noble human being, and not to direct his efforts to sensuous enjoyment or idle honours. The freedom of the thinker must be understood in the same way. It must be assumed that his will is directed towards knowing *reality* in its nature and connexions, or it must be made clear to him that this is at least his *immediate end.* But if he is clear about this, then at once he has before him, instead of wild dissipation, a most difficult *task:* he has to dispose of the powerful means

of thought in the way which is most real, most useful and most appropriate; he has to form the *best* concepts, *i.e.* the concepts which conform most perfectly to that end; and he has to coin and connect with those concepts signs, which shall be the most useful, the most convenient and the most easily understood. Not every one, not the apprentice or the journeyman, will feel himself equal to so high an art, and Goethe's verse of the mason is peculiarly appropriate here:—

> Wer soll Lehrling sein?—jedermann.
> Wer soll Geselle sein?—der was kann.
> Wer soll *Meister* sein?—der was *ersann*.[1]

But all alike must know that they belong to a great alliance which runs through all nations, the *Republic of scholars;* and to work in and for this, to be recognised in it and to find in it a following and co-operation, has always been the highest aim of the master. There at once the individual will, at the height of its enjoyment of power and of its artist's pride, finds itself over against a more powerful *social* will which commands its respect, and which, forming itself in a council wherein the most distinguished masters have the greatest natural weight, and exercising its office of distinction and selection, determines with decisive sovereignty, what is to hold universally, what permanently, and what both universally *and* permanently.

How little progress we have made in the scientific knowledge of man—which is the essential business of all Psychology and Philosophy in the modern sense—we may estimate from the fact that we have attained to so extraordinarily little clearness and agreement concerning the objects and methods of these sciences. At any rate we shall allow, what we seldom act upon, that we must not philosophise in words alone, but that the word is a sign indifferent in itself, the value of which depends entirely upon its being appropriately formed and upon its serving to arouse the desired clear and distinct idea, or—in proper, that is abstract, thought—to recall the activity whereby we, or another, or all in common, formed a concept, and thereby to recall the content of the concept. Much less do we recognise the possibility and importance of free choice in the formation of concepts, or we tend to confuse it with the mere determining of the meaning of a word. And yet we have here the source of the mastery of the greatest problems.

[1] Who must be apprentice? every one. Who must be journeyman? he who can do something. Who must be master? he who has invented something.

Conceptual matter is the iron which we, as thinkers, have to forge. Many kinds of implements must be made thereof; for digging, for ploughing, for fighting, for forging itself. Scientific thought is not a matter of chance. It must be learned by hard work and practised in persistent endurance and eager striving; its rules and methods must be known. Natural capacity is called for, as for every other art; but even the most capable will go astray if he allows himself to be led by, or encouraged in, the fancy that philosophy must be characterised by lively intuition, fancy, and poetic diction, instead of by exact and strict thought.

But we think that an honest endeavour to find a deeper basis for these branches of knowledge, even though its success should not be recognised, deserves at least to be respected as good will, and we venture to appropriate the utterance of a famous predecessor: "The consideration then," says John Locke (*Essay on Human Understanding*, iv., 21, 4), "of ideas and words, as the great instruments of knowledge, makes no despicable part of their contemplation, who would take a view of human knowledge, in the whole extent of it. And perhaps, if they were distinctly weighed and duly considered, they would afford us another sort of logick and critick than what we have been hitherto acquainted with." And with reference to the utility of the treatise, again, we may say with him (*ibid.*, iii., 5, 16): "I shall imagine *I have done some service to truth, peace and learning*, if by any enlargement on this subject, I can make men reflect on their own use of language; and give them reason to suspect, that, since it is frequent for others it may also be possible for them, to have sometimes very good and approved words in their mouths and writings, with very uncertain, little or no signification. . . . And therefore, it is not unreasonable for them, to be wary herein to themselves, and not to be unwilling to have them examined by others."

I.

1. We call an object (A) the *sign* of another object (B), when the perception or recollection A has the recollection B for its regular and immediate consequence. By object we mean here everything which can enter into a perception or recollection, things therefore as well as events. Perception is all apprehension through sense; recollection includes, besides the reproduction of perceptions, the reproduction of all other sensations in so far as they have an object, or at any rate a content which can be regarded as object. Human recollec-

tion is also thought. Thought, as we understand it here, is itself for the main part recollection of signs, and by means of signs of other things which are denoted. In what follows the name "ideas" is occasionally used to include both perceptions and recollections, but may also include *feelings*.

Some signs are *natural signs*, *i.e.*, when the sequence to which they give rise is based upon the natural relation between sign (A) and object signified (B). Natural relations of this kind are manifold. They may be derived from an ideal case in which that sequence is self-evident; from the case of the *identity* of A and B, of the sign and the thing signified. This identity may (1) be present in the act of knowing of the perceiving subject; then B is in no sense another thing, and the proposition that A is the sign of B, tells us nothing else than that the perception or recollection of an object has the recollection of itself as a regular and immediate consequence. When said of the recollection it means only that it has a certain duration which may be regarded as a reproduction of itself; when said of the perception it is true in so far as perception cannot take place without recollection—a judgment of which we must here assume the correctness. But this reduces the proposition to the first alternative (that it is said of the recollection); but for a perceiving or thinking subject identity is indistinguishableness. (2) The identity is *not* present in the act of knowing of the perceiving subject and is yet capable of becoming known through a process of thought. Such is—according to a philosophical doctrine which again must be assumed for the purpose of this conceptual division—the identity of the living *organism* with its (in the ordinary view "indwelling") soul; in other words the identity of organic "external" *movements* with the "internal" sensations and feelings expressed therein. For perception according to its concept, sensations and feelings (in future "sensations" will include both these) are not present as objects—they are not perceivable; on the other hand all bodily movements are perceivable, yet in reality most movements of the living organism are *not* perceived, only a few of those movements which are also called expressive movements, are uniformly objects of perception.

But if sensations and movements are thought of as identical, then it follows that the apprehension of these (external organic) movements is really also the apprehension of sensations, though it may be quite indefinite; and to this there corresponds the fact that there is sympathy between

organic beings, and that for sensuously perceptive subjects this sympathy takes place in one undivided act with sensuous perceptions (in "intuition"). In such cases—*e.g.*, when through the cry of the young sympathy with its hunger enters into the mother animal—we can say: the cry is the sign of the feeling of hunger which is identical with it; and if we divide that undivided act into the two: perception (of the sound, *i.e.*, of a movement) and sympathy (a sensation), then the invariable and immediate sequence is self-evident, *i.e.* it is explicable by the identity. But in proportion as the activities of knowledge separate themselves from the total mass of experiences, *i.e.*, of psychical facts, it becomes obvious that expressive movements *become signs* of the sensations (which are fundamentally identical with them), *i.e.*, according to our definition, the perception or recollection of such organic external movements has for invariable and immediate *consequence* sympathy, *i.e.*, recollection of a sensation.

2. But from sympathy arises subsequent feeling, and ultimately the *inference*, which is obtained discursively and therefore the more exposed to error. The inference from the expressive movement to the "will" remains nearer to intuition in proportion as the two are unambiguously connected with each other, and that is more emphatically the case the less a specifically human "rational" will is present or developed, so that what may be objectively comprehended as sign may be forthwith actually and subjectively received as the thing itself by the recipient (person understanding), or at least as a combination of *both* the thing *and* its sign. So the despot receives and understands prostration *both* as the actual submission demanded *and* as its sign. In this and similar cases we may see how the sign arises *out of the thing itself*, or at any rate separates itself from it, *i.e.*, the *mere* sign which is no longer *also* the thing itself, although its connexion with the thing itself was originally the chief element in it. The slaying of the victim is originally intended quite straightforwardly as nourishment for the departed spirits, while at the same time it is meant as a sign to them of the mindfulness, fear and piety of their relations. Gradually it becomes a mere sign of these feelings, even for those who make sacrifice; the end becomes means and the means becomes more and more independent of the end, *i.e.*, more and more *distinct* from it.

3. Thus it is that, in general, organic external movement becomes for perceiving subjects the sign of sensation and feeling. And since natural thought is metaphorical, that

is, translates the unperceivable into sensuous pictures, this is also expressed by calling it the external sign of the inner, as if the soul were spatially present in the body, and both therefore parts of a *perceivable* whole. And so this case, which is immediately appropriate to the concept, is reduced by language (which expresses natural thought) to a more remote one derived from identity.

4. The *next* case which can be measured by Identity is the sensuously perceivable *Similarity* of one thing to another, which in its perfection is called *complete likeness*. Thus a portrait is a sign of the original, and is more so—*i.e.*, has the recollection of the original more immediately and invariably as consequence—in proportion as it is more similar, or approaches more nearly to complete likeness. But even the shadow is by its similarity a natural sign of an object, and in the same way the print of the foot, etc.

5. That the part is the natural sign of the whole, can be derived from the case of Identity from another point of view. For it is the nature of recollection to pass from part to whole. This rests ultimately upon the laws of custom and habituation, which again regarded from a material point of view are special cases of "the least expenditure of energy," but arise psychologically from the impulse to self-preservation (the will to live); the more deeply and closely a perception or recollection is connected with this impulse, the more easily, rapidly and frequently is it reproduced, and the more will it be the case that perceptions of the parts of a whole will suffice to excite the idea of the whole as present. On the other hand, this completion becomes more difficult, takes therefore more the form of an inference, in proportion as the part is more trivial or less characteristic in comparison with the whole.

6. In the same way the part is natural sign of another part, especially of one adjacent in space or in time; hence every antecedent may become the sign of a consequent, and *vice versâ*; something external the sign of something internal, etc.,

That is a sign which acts as a sign.

Here there is as much variety as in the facts of the association of ideas in general, which are admittedly reducible to a few fundamental rules. It is rightly taught—though not yet in a definite form—that even for the process of simple cognition, especially for the spatial ordering of sensations as perceptions, one becomes "sign" for the other, that act of memory becoming possible for us through the transition—unconscious inferences—from the more known to the less

known which we know as orientation. But further, all the higher kinds of cognition also attach themselves as comparisons—identification, distinction, inference—to characteristics which lead to reflexion, to expectation, and to certainty. The *judgment* is grounded upon signs.

7. Natural signs appear either in that course of nature which is independent of human will, or they are "made," "given," "formed" by men, and these latter again are either (as such, *i.e.*, as signs) made involuntarily or with the *purpose* of "denoting" something, they *are* to denote something. A made sign is either intended to serve the person himself who made it for his future recollection, or it is to serve others for their present or future recollection.

8. All human expressive movements are, or become, *involuntary* signs of the psychical states expressed in them. These signs vary between the limits of that which takes place contrary to our will or wish (*e.g.*, blushing, growing pale) and involuntarily (the so-called reflex movements, *e.g.*, starting, wrinkling the brow)—hence the signs which "betray" us—and these belong entirely to the independent course of nature; and at the other extreme that which is involuntary as sign, but nevertheless is done with the assent of the subject, *e.g.*, the cry of joy and springing to embrace when lovers meet.

9. To make expressive signs is, or becomes, necessary for any one who desires to *impart* his sensations and feelings, especially the wish that another being should do or omit to do something. Signs which are made for this purpose may even be understood by many animals; to them belong more especially tones and gestures, but also action which affects the general sense-organ of the skin either pleasantly or unpleasantly.

10. The *use* of signs of different kinds, which is so infinitely important for the whole cultured life of humanity, depends principally upon made signs. Sensation in common, thought and belief in common, make themselves known in the *use* of signs, even when these have no other *purpose* than to afford *expression* to just this feeling and fellow-feeling, to be "symbols" of the community.

11. But most signs of this kind serve also for mutual understanding, and are easily understood in proportion as they are natural signs of the will which "utters itself," or "reveals itself" through them. Here then action upon the sight (gesture-language) is capable of much greater variety than action upon general sensation, while action upon the hearing again (sound-language) surpasses this in

much higher degree owing to the plasticity of the material in which the signs can be, as it were, coined. It is true that at first the development of gesture-language is the easier, just because it deals with a greater number of natural signs; hence in the earlier phases of human development it is only supplemented by sound-language; a relation which afterwards reverses itself, until finally the sound-language as fixed in writing acts by itself alone and lacks even the explanation which the speaker gives to his words by the modulation of his voice. The progress from sensuous and particular to conceptual and universal communications develops itself in general in the same relation.

12. For out of articulate sounds arise almost exclusively the completely different genus of signs, which we oppose to *natural* signs as being *artificial* signs. Here there is no longer any natural relation or bond between the sign and that which it signifies; it is the human will alone which produces the relation of ideal association through which the word becomes sign of the thing, as also the relation through which writing becomes sign of the word, and the letter-unit becomes sign of the sound-unit. But the separation of artificial from natural signs is a process which moves gradually and in imperceptible transitions; the memory has to accustom itself to signs which are more and more unnatural, therefore more inconvenient; and which nevertheless are for human purposes facilitations, because the natural signs do not suffice, or would cost a far greater expenditure of trouble to be sufficiently elaborated. The natural signs upon which linguistic sounds are based are sometimes involuntary expressive movements of the vocal organs; sometimes imitations, *i.e.*, copies, of heard and familiar sounds; and finally, sometimes they are attempts, formed according to the principles of analogy and contrast, to reproduce the impressions of objects, which have then, favoured by relatively fortuitous circumstances, maintained themselves, *i.e.*, have entered into a more or less firm connexion with the ideas (perceptions or recollections) of the objects.

13. A certain word has a certain meaning, *i.e.*, it is sign of a certain (perceivable or thinkable) object, according to the will of one or more persons. When it is according to the will of *one* person, then either he alone understands the sign, and then it is a private sign; or it is understood by others also, and then it is a social sign. Here again it is a question of transitions. Understanding is itself a kind of willing, it is the will of recognition, of acceptance, *i.e.*, of appropriation, and thus understanding in common is like

possession in common. Thus by understanding a social will issues from the individual will. But the less social validity a word has, the more *effort* it needs for the individual to make himself understood; he then strengthens by natural signs—tones and gestures—the meaning which he desires to give to the word.

14. But words are *essentially* and according to the law of their development *social* signs; and the social *will* which expresses itself in them, which settles and gives to them their meaning, is—like all social will—of various kinds.

15. Here we must first of all indicate the profound difference between the social will which has formed itself in a natural way, and that which is made consciously. From this difference arises the fundamental difference of the sense in which a word means anything. But before we can consider this in detail a general exposition must precede.

16. In every case the meaning is a kind of equation; a word is equal to one or more other words by which it is explained, and is thus mediately or immediately equal to the object of a perception or recollection. But these equations are *not* generally thought of as something willed, but as something actual, which therefore we know or do not know, and concerning which we can have a right or wrong opinion; we know or do not know what a word means, *i.e.*, for what it *is* the sign, or what a thing is "called," *i.e.*, by what word it is denoted. The question from what *cause* a thing is called so and so, is at first as remote from us as the question from what cause a thing is green or blue.

17. In every circle of human beings, that which all know (or at any rate may learn), that therefore to which all feel themselves *bound*, is held to be so real (*i.e.*, like the natural), the connexion between name and thing becomes so firm, that it is felt and thought of as necessary. The name is held to belong to the thing, and to have a mystic connexion with it like that of a picture or a shadow. This is especially the case with the names of persons, giving rise to the fear that knowledge of the name gives power over body and soul, and hence to anxiety to conceal proper names and avoidance of uttering the names of the dead lest their rest should be disturbed, and much allied superstition. Even in philosophy it is not easy to overcome the view that certain names belong to things by nature (φύσει), and the Christian thinkers laid it down that Adam assigned the *right* name to things; even in the beginning of this century the doctrine that all languages are to be derived from Hebrew was again received. Nay, there are still famous authors to-day who regard the posses-

sion of language, that is of an elaborated system of sound-signs, as an absolute cleft between man and the lower animals; a theory which needs for its completion only the other theory that a new absolute cleft has been opened between men who possess the sign-system of writing in letters and those who do not possess it, so that the former cannot be descended from the latter.

18. Now we know that there are different human "languages," by which we mean the total systems of sound-signs which are understood and used in a certain group of men, in a nation or in related nations. The fact that within such a group smaller groups are again distinguished, chiefly with reference to the sound-forms or "pronunciations" of the same words, but partly also through a certain number of deviating peculiar word-signs, is expressed by saying that within a language we find various "ways of speaking" or "dialects". As a matter of fact there are in every larger or smaller group of men, who live together and have common experiences, particular words which are regularly used, and are often so considerable and striking that we speak again of a particular "language"—student's language, sailor's language, "thieves Latin," etc. Not seldom, again, there is in the narrowest and smallest groups, as between married people or brothers and sisters, a private language, *i.e.*, numerous names of things which they alone understand or use, and which they, or one of them, have invented; such a name may be an arbitrary and otherwise meaningless sound, or a sound which in other connexions means something else, or a sound attached to one which is thus familiar.

19. It is true that for mutual *understanding* a common idea-system is as necessary as a common sign-system; nay, more so, for if the ideas are there the signs are more easily and quickly gained, and therefore also substituted; while the knowledge of signs is worthless without knowledge of the ideas to which they are to be referred, and this knowledge is much more difficult to gain or replace, especially when we are no longer dealing with perceivable, but only with thinkable objects. Hence the fact that two men speak the same language is no guarantee for their understanding each other to any great extent. The question here is not only of capacity for perceptions (we speak in vain of colour to the blind), ideas and abstractions, but also of the whole range of specific technical and scientific "concepts," the names of which help us nothing unless we are familiar with the objects. Finally, for an intimate understanding we need,

especially when we are dealing with merely subjective feelings and experiences, a positive ("good") *will* to understand, hence an active *sympathy*, in so far as this is not replaced by *interests*, *i.e.*, by the thought for which the understanding is means to another end. In every case the understanding of another's meaning is, as reproduction, a kind of constructive effort, which is more or less successful, and the success of which is made more probable by attention and practice, but also by the knowledge of rules according to which we may infer the real meaning of the speaker who wishes to impart it, partly from the phenomenon (the sign used) and partly from the accompanying phenomena (*e.g.*, of emphasis). It may be that a stammering or babbling will suffice for the understanding of one, which is incomprehensible to all others; or there may be needed a long apprenticeship, and—even for learned men—the unfolding of a thought in many complicated sentences.

20. Thus not only mutual, but even one-sided, understanding presupposes a similar knowledge of ideas and signs on both sides. Signs are themselves ideas, and their connexion with the ideas signified is that which must be forthcoming to make an understanding possible. When other than natural signs are to be understood this connexion can only be gained by *learning*, *i.e.*, by increasing and confirmatory experience, which may be obtained chiefly for oneself or chiefly by the help of others. In every case the development of those associations of ideas which are known as habitual and involve a knowledge (though it may remain latent), is conditioned by our own practice and the habit which grows with it. But the habitual and familiar is felt and thought as natural, hence it is not easy for the naïve spirit to raise the question *why* the object has this name or the word this meaning, or the question is answered like similar questions as to the origin of modes of action, customs, etc., by reference to common agreement and to tradition from our ancestors. The power of the fact, when regarded as actual and natural, is indeed weakened in that there are many languages, and that it is only *in* this language of *ours* that the fact is so—for this leads us to regard the meaning or name as fortuitous instead of as necessary, to think of it as fixed by human will and therefore capable of change (*νόμῳ*) instead of as natural and immutable (*φύσει*). But the particular "language" appears as a natural or supernatural kind of being, it has a "spirit," we make use of it as of a living instrument. We use it as a whole, and it presents itself as a whole because through it (*if* we will to use it) the particular words are held together in

a logical non-arbitrary manner, and are therefore prescribed or offered to us in such a way that we *must* use them; hence too there are "rules" for their combination which must not be "transgressed," if we are not to be guilty of a wrong, awkward, incomprehensible, or at any rate clumsy, form of speech.

21. The spirit of language is one of the forms in which we recognise what we define as the *social will*. To recognise the nature of the social will is necessary in order to analyse the different senses in which it can be said of words or other social signs that they have a "meaning". It is for this reason that we have premised the distinction between social will which has formed itself in a natural way, and that which is made consciously, we might almost say, arbitrarily. By social will in general we mean the will which is valid for a number of men, *i.e.*, which determines their individual wills in the same sense, in so far as they themselves are thought of as subjects (originators or sustainers) of this will which is common to them and binds them together.

22. By individual human will we mean here every existing combination of ideas (thoughts and feelings) which, working independently, acts in such a way as to facilitate and hasten, or hinder and check, other (similar) combinations of ideas (makes them probable or improbable).

23. In this sense human will may be thought of as the cause of human activities or conscious omissions; for activities and conscious omissions are, from a psychological point of view, nothing but successions of ideas.

24. In these causal combinations of ideas the relatively constant elements are the feelings (affirmation or negation), and the relatively variable elements are the thoughts. The relation of the latter to the former must therefore constitute the principle of division and of classification. Upon this principle is based the dichotomy of the individual as of the social will. The will in which the feelings predominate we call natural, that in which thoughts predominate artificial. That is to say: in the one case the relation to the activities (to put it briefly) in which will in general "utters" or "realises" itself precedes more as a feeling—this may also be expressed by saying it is felt as an objectively present tendency,—in the other case it precedes more as a thought. As a feeling it is by nature indefinite and develops itself from general to particular relations. As thought, it starts from particular determinations and passes over into more general ones combined from them. From this antithesis we get the following characteristics. In the former—the feeling will—

the ultimate end rules; *i.e.*, the idea of a general good directs feelings and thoughts to the particular good; in the latter—the thinking will—the idea of a particular good (the object) guides all other ideas and subordinates them to itself. In the former—to point out a still more definite contrast—his task, his vocation, "becomes" manifest (or has become manifest) to the man, "I ought to do this"; in the latter he "makes" (or has made) his plan, "I must do this". Finally, to have recourse to current scientific conceptions, in the former the unconscious predominates in the will, in the latter the conscious.

25. There is a further classification of the forms of will which crosses this division, and is guided by that relation to activities which is common to both types. According as the sensuous element (sensations, perceptions), or the intellectual element (ideas, thoughts) preponderates therein, *i.e.* in the corresponding succession of ideas, there arise in each instance two chief forms, one of the beginning and one of the end; but between these we place the large mass in which the elements in question appear to be so mingled as to stand in a relative equilibrium.

26. There arise then six classes of forms of will, each of which, however, can be analysed again into subdivisions. We will indicate them here by letters:—

W F s	W F s i	W F i
W T s	W T s i	W T i

How far these conceptually constructed forms are really forthcoming, or coincide with such as are really forthcoming, is not the question here; nor, therefore, whether it is possible to denote them by words which are otherwise in use.

27. An object (A) becomes by an individual—*e.g.*, my—will, sign of another object (B); this is, in order to represent the contrast with natural signs, the next problem. Reduced to the simplest and natural expression it runs: when I perceive A—although it stands in no natural connexion with B—I will think of B. But this "I will" may refer (in German literally) both to the present and to the future; it may imply a recollection which is to occur once or occasionally, or again one which is to be uniformly repeated. The recollection itself is bound essentially either to the perception or only to the idea, hence is of a more sensuous or a more intellectual type. But the will which forms the association, or is present in it, is here divided according to our scheme into its forms. On the one side stand two "events," which are connected with each other by the "feeling-tone" of the one, or of both,

or of a third. The hopeful, courageous man, who *e.g.* goes out to battle, easily "accepts" any casual occurrence as a "good sign" for himself (*accipio omen*),—the idea of victory so excites him as to assimilate to itself every other idea; that idea combined with the wish *is* here the will. But the connexion between sign and signified is here only loose and superficial, it comes into existence and passes away again easily with the sensuous perception of the sign. A more permanent connexion is made by a permanent wish, an "interest"; there is always as basis the "wish" for favourable events, hence for favourable signs; delight in the former transfers itself to the latter, and for this reason recollection is as pleased to "linger" over them as perception. It is thus that the practical man who is dependent upon accidents, *e.g.*, a farmer or a sailor, *accustoms himself* to make many kinds of observations and to connect them with the particular stages of his work in such a way that the recurring perception invariably is for him a favourable or unfavourable sign. It is of such habits of thought that the whole mass of traditional superstition is composed. Finally we may be incited by just such motives of will to actually *learn*, whether from others or from our own experience and reflexion, to "give a meaning" to events, *e.g.* to dreams, which stand in no natural relation with future events but can be *brought* into arbitrary connexion with our opinion about them. Here the recollection itself becomes of a markedly intellectual kind; *e.g.* the "conviction" arrived at by private thought that a dream of fat cows signifies fortunate years. In all these cases what we think of is only how something becomes for an individual through his will the sign of something else. In reality such signs generally have also, or obtain, a social significance preceding or through the individual significance. But this social significance is only necessary when signs become the objects of social use.

On the other hand we notice, that the wish for a given recollection constitutes of this an End and of something else, which is first connected with the idea of it, a Means, *i.e.* an assumed cause of the recollection. The desire may select for this purpose the natural sign, or a socially valid sign, or finally—and this alone concerns us here—it may connect with the idea a sign which is significant for it alone. The form of the will may be sufficiently illustrated for our present purpose by instances. 1. I *make* for myself a sign to be used once or upon occasion—*e.g.* a knot in my handkerchief, to remind me to-morrow of a letter to be written; marks in a book, to remind me at the next reading of my pleasure or

displeasure. 2. I *place* as permanent memorial (*e.g.*) a stone in my field to remind me that in this place I received important news. 3. I *invent* a sign, in order that I may recognise something by it, *i.e.* to remind me that an object stands in a certain relation to me, *e.g.*, is my property. It is thus that I "mark" my animal in the herd; the essential point of my act is the intellectual certainty that I can at any time select it out of the herd as mine. Here the individual significance of the sign easily passes over into an exclusive one, *i.e.* into a "secret" one. The sign is to be either comprehensible for me alone or perceptible for me alone.

28. To show now how the *social will* variously presents itself in an analogous way, we will start from the most marked and principal types of its two genera, the concepts of which coincide almost completely with verbally recognised social forces. But at the same time we must make the application to valid meanings of words which are created by such forces.

29. The type of the former category is *custom*, of the latter *law*, in the sense in which we think of it as proceeding from deliberations and conclusions of an individual or of an assembly ("statute"-law).

30. The essence of custom lies in actual practice; it corresponds psychologically to what is known in the individual as habit, and it is also called expressly *Volksgewohnheit* (habit of the people). As will, it is most simply recognisable in the general ill-will, often indeed anger or horror, which is excited by its violation; but also in the forms of speech which proceed from general thought, such as: custom commands, custom demands, custom is strict and inexorable, etc.

31. In languages this view of custom is combined with that of a merely objective activity, of habit as mere usage, *i.e.*, regular usage. But any one knowing the "spirit" of his language will easily note, as by some inward accent, whether custom is being spoken of *in the one sense* or *in the other;* just as we can distinguish also an *individual* application of the word from the social, though in German this is characterised by the plural form and by the fact that it corresponds only to the second and objective application of the social concept (*ein Mensch von lockeren Sitten*).

32. Synonyms of the word in its social sense are, in German, *das Herkommen* (tradition), *der Brauch* (usage); the former expression indicates the foundation of custom through the usage of preceding generations, and the constraining power of that which our fathers have done and

held to be good; the latter (*der Brauch*) refers more to living practice.

33. The German language forms for the concept of custom in its application to the meanings of words, the special word *Sprachgebrauch*. In it we are thinking less of tradition than of actual usage, though of course it is also conditioned to a large extent by the former and this is sometimes emphasised by the expression *herkömmlicher Sprachgebrauch* (traditional use of language). That the use of language, like other customs, has also a subjective side is obvious with so psychical an act as that of speech; and yet the object is so far intellectual that deviations and errors ought not to excite ill-will. Still, in every linguist there is another kind of dissatisfaction, or at any rate dissent, which makes itself felt, often only as at something ludicrous, and in less marked cases simply as the judgment which denies something as false, and as the wish to correct. But that the actual usage, by which the individual is guided, and which every one recognises as "decisive" for the meaning of words, is based upon something like a general and consentaneous *will*, may be seen again from the fact that we are accustomed to speak of language as a "property," a "national inheritance," a "sacred possession," attacks upon which have often led and still lead to hot combats of speech and weapons. "We *will* speak our language": what does that mean if not "we will use these signs *with* these meanings"? The willing of the usage *involves* the willing of the meanings, and that these are not thought of as included in the will is due to grounds already indicated. *Will is not recognised in habit* (though in language we may find traces of this recognition, which is lacking to Psychology. Think of the Greek word ἐθέλω, where the identity is directly indicated, and the corresponding German *pflegen*, where it is indirectly indicated), though it declares itself strongly enough, especially as resistance. There is always dimly before us the argument (true enough in itself) "*if* this were taking place by my (our) will, then my (our) will could at any moment change or annul it". What is *not* true is only the tacit assumption that the (individual or social) will is something which can *come into being* at any moment without sufficient cause. The real fact is, that the more deeply rooted a habit is, the more improbable and difficult is its counteraction by our own or another will.

34. It is through *Volksgewohnheit*, or custom, that the social forms arise and grow which touch the *life* of the individual most profoundly, and which we call "law" (*G. Recht*); legislation brings consistency into these manifold forms, and

makes law consciously and in accordance with a plan. The former, the law of custom, appears partly in facts, proverbs, or rules handed down by word of mouth or in writing; partly in the practice of judges, in judicial custom, *i.e.*, in judgments which are passed invariably, or only once, in a given typical case. The latter, legislation—*i.e.*, the social force which is capable of carrying out its will,—attempts to think of all possible cases beforehand, and after consideration of their appropriateness for definite ends, to establish rules according to which judgments and sentences must be passed.

35. In its great variety and numerous contradictions customary law frequently leaves the "spheres of right" of persons confused, crossing one another, and having common elements which are difficult to deal with; legislative law, on the other hand, endeavours to draw sharp divisions and limits between the particular spheres, to leave nothing in common which is not derived, or at any rate derivable, from individual property or right. Legislative law, when moving freely on its own lines, is as far as possible *rational.* In so far as customary law is contained in propositions or judgments its language follows general usage, and shares therefore in the indefiniteness and uncertainty of usage.

36. Customary law always involves a certain usage of language, in which it makes itself explicit. It is the affair of the judicial judgment to know whether a thing is so and so, *i.e.*, whether a certain *name* belongs to it, *e.g.*, the name "wine" to a drink, the name "poison" to an addition to it. It is ascertained whether the thing has the qualities which customary language intends to denote by the name, which it takes to be its characteristics.

37. Legislation must concern itself directly with the determination of the meanings of words. In the penal code not everything which is called deception or theft by the people and in ordinary use, is recognised as a crime of this type and threatened with penalties; what happens is that *definitions* of these concepts are laid down, and prescribed as standards of meaning. Modern socio-political legislation and the regulations depending upon it, cannot avoid stamping as concepts expressions of daily life such as workshop, labourer, manual worker; *i.e.*, it gives them fixed and easily recognised limits, and indeed different laws, different regulations, determine these limits in different ways, and it is then said (*e.g.*) "manual worker in the sense of *this* law means . . ., a labourer in the sense of *this* regulation," etc.

38. But just as to a large extent laws merely fix, extend or limit, and more especially make consistent the norms of customary law, so also legal determinations treat the meanings of words. On the other hand this often occurs without any respect to customary usage, even in opposition to it. New concepts are formed, and for them new words are created or new meanings given to old ones. The legislator disposes freely of the material of language, but always holds it expedient to respect customary usage, by which indeed he often remains bound, even when he no longer feels himself to be so.

39. With exception of the indirect cases we have mentioned, there is not really any *legislation for language*, as opposed to the customary usage of language, which to so large an extent contains the great mass of social will referring to the meanings of words that we may almost always call it simply language. Nevertheless we find an important analogue in the activity of grammarians and lexicographers, when provided with social authority by the state, or able to earn it by personal prestige, the former case being nearer to legislation. Typical of this is the French Academy, the dictionary of which has undertaken with so much success to unify and purify the language; a satirist has called the hypercritical founders, "souverains arbitres des mots". A much weaker analogy is afforded by the influence of authors who are accepted as models; and we shall revert to this analogy in another place.

40. Like these authorities, and often in direct contact with legislation, *science* also handles and influences language. It is legislative for the meanings of the words, which it takes from customary language for its own ends and defines—*i.e.*, fixes the meanings as they are to be. Nor is the formation of new words strange to it—words which do not occur at all in customary language, which it calls into life while fixing their meaning, either by inventing them, or more usually by borrowing them from a foreign language. The meanings themselves, again, it may express either by similar artificial words (*Kunstwörter*), or by natural words to which it has left their ordinary meaning or given a new one. But it first exerts its complete sovereignty when it makes its own objects; *i.e.*, when independently of what is already presented and thought of, it constructs objects and assigns to them old or new names. Its terms then gain a particular significance. *E.g.*, the word "circle" (*Kreis*) has in customary language manifold other meanings, by legislation the word in German becomes the name of an artificially bounded

administrative district, in science it (and in every civilised language a corresponding word) signifies the *concept* of a thing which is completely possible in no experience, of a closed line, of which every point is equally distant from a central point; and here again the terms line and point have just such a specific, scientific significance. This again we sometimes call a scientific "way of speaking" (*Sprachgebrauch*) —*in* our customary language. But here we are distinguishing and defining, and take therefore no account of customary language; thus affording, ourselves, an instance of scientific freedom in forming and classifying concepts; a freedom limited only by criticism of its conduciveness to the end in view. (It is in this way that we expect to justify our ideas in the course of the treatise.)

41. But if we investigate social habit, usage, more closely, we find that something of the kind always arises where the living together of men rests upon the bases most natural to it. Just as the habits of individuals develop most easily and frequently from original and strong *inclinations* (tastes, needs), so also social habits develop from mutual and common inclination. All inclination reveals itself, and still more completes itself, in activity, for it is the beginning of such activity. From the strength and frequent renewal of the inclination follows a frequent renewal of the corresponding activity; subjectively this becomes a habit, when the inclination becomes strengthened or even exclusively conditioned through its frequency, since the repeated action may also proceed from less voluntary sources. Habit is always a *disposition* to certain activities distinct from inclination, and more binding and regulative. The freedom of the will is determined by it in a particular way, it is felt as constraining, even as compelling; "man" is the "slave" of his habits, and yet they are essentially only more fixed forms of impulses which are fluid, but not on that account less necessary and constraining. Just so usage acts in social life and is related to the social instinct, or whatever we may call the elementary constraining force, which is also regulative for the meaning of *signs*.

42. The understanding of *natural* signs, *e.g.*, of gestures and cries, is conditioned by similarity of organs, and facilitated by social feelings and habitual living together; and where these advantages are present artificial signs differ from them hardly at all. Where the impulse to help—whether reciprocal or not—is strong, there the attempt to indicate a certain danger by a sound (even when the sound is no longer, or not primarily, imitative or expressive) is

quickly understood, comes easily into circulation, is taken up and accepted. Since mutual imitation is the expression of unanimity, this, *the natural harmony of minds*, may be regarded as the first cause of a current meaning of words, as of other signs. In every nursery, in the bosom of every happy family, we may see how new names for men and things are invented and understood, how they are taken up and repeated from delight in them or in their inventor—*e.g.*, the child who imitates the sound. It is similar when, in larger communities of language, orators and authors introduce new and special words, or new meanings for old words; through the fact that they please, or through the impressiveness and influence of the inventor, they become current for a time at least, *i.e.*, they are imitated, repeated. And with respect also to the *origin of language* we must suppose that these springs of free invention, of attempts at introduction and at temporary validity, flowed freely when once the organs were accustomed to form a variety of sounds. What then maintains itself in permanent use and is handed down to younger generations, is obtained by *selections* from this wealth of original word-germs; selections which are themselves being constantly renewed. The psychological causes of those luxuriantly abounding germs in which words are created together with their sensuously felt meaning, we may denote as speech-feeling, or speech-instinct, or better as the impulse to the formation of speech; and this we may then show to be the basis of customary language. It is well-known that just the crudest languages are burdened with a superfluity of synonyms, and also that in them dialects generally vary according to the smallest local districts.

43. Language, like other systems of signs such as writing, notes, signals, is handed on by *teaching*. With reference to one's native language, it is true that the teaching is generally mingled with custom and given in imperceptibly small doses, which act all the more strongly from their continuity. But it is always the *authority* of the teacher which communicates as a fact that the thing is called so and so, that the word and the sentence (as unity of several words) *have* such a meaning. This statement must be met, not only by the desire and ability to understand, to impress it upon the memory and to show oneself as imitative, but also by the *belief* of the learner. But everything is easily believed which finds no psychological hindrances in opposed knowledge, in personal mistrust, or in dislike of the subject. Belief is acceptance and confirmation, as it were endorsement

by signature, and therefore an action of will; and since the teacher has also received with belief that which he hands on, we may claim common belief also as one of the forms of the social will which give to words as to other signs their meaning.

44. But this is noticeable in a marked manner when we are dealing with special signs and special words to which belief, or allied forms of a feeling will, such as reverence or inspiration, lend a special and heightened meaning. To a large extent this occurs with ceremonies and the mystical words connected with them, which are held to be sacred and to act in a supernatural manner. Words of which the true meaning is not understood, *e.g.*, when they are taken from a foreign language, thus get the significance of containing a power which far surpasses the power of ordinary words in arousing human feelings and sensations. Faith declares that they act upon Nature, or upon gods and demons which through and for faith are present in Nature. Thus common superstition has characteristically taken the uncomprehended words of the *Eucharist*, "Hoc est corpus meum," and as "Hocus pocus" simply made them into a charm, which belongs like the witches' multiplication-table to the necessary apparatus of those who appear to realise the impossible. So too the theologians do not think of the Creator as immediate originator of heaven and earth, as it were through his nature or will alone, but he must *speak* the creative fiat (this is in no way peculiar to the Judaic-Christian idea; "in the Indian and Persian religious systems the creative power of the word is placed at the apex of being"; the sound is "Brahma," it is said in the Mimansa, through the spoken word Parabrahma creates the universe. "When Ahriman, the wielder of death, stormed through the earth, spoke Ormuzd the Honover, the pure, the holy, the swift-working word, to maintain and protect creation" (Bastian).). Thus speculation, attaching itself to such naïve ideas, makes the word itself into God, or into the revealed Son of God; and as the word can create all and change all it creates and changes itself into flesh, and moves as man among men. But even beyond the sphere of the miraculous a mysterious actual value is attributed to the word, and to certain words therefore a good or evil significance as omens. And the power of the spoken word, especially in public speaking, depends largely upon the fact that certain words and turns of speech are endowed by the hearer with an additional meaning which arouses his feelings—his love, reverence, enthusiasm; his hatred, horror, wrath. Think,

for instance, of the "charm" in words such as liberty, equality, fraternity; and on the other hand of the gloomy associations which are aroused by the words compounded with "blood," such as blood-guiltiness, blood-feud, etc.

45. It is a part of the art of the orator, to awaken and to maintain by the right application, emphasis and accentuation of such words, the "mood" which prepares his hearers to accept his thoughts and to follow his counsels.

46. Artistic and poetic language is essentially allied to religious and all ceremonial speech. It, too, gets its original power and validity from the popular belief for which that is real and true which endures as image and simile in poetic language. Credulous imagination fills the world with living active spirits; natural man, and the teachers who lead him —priests and poets—*believe* that with all things it is as with men; they read human will, human passions into things, and in this way make them familiar and comprehensible—poesy is also explanation. All remarkable natural phenomena, and also events in human life, *are* for such modes of thought supersensuous demons, giants, gods and the like, or they are caused by these. The inclination and habit of filling, as it were, every corner with living beings, is heightened and strengthened by particular stories, fables and myths, in which it reveals itself; and there is constant interaction between these myths and *language*—sometimes the verbal expression is evoked by the myth, sometimes the myth by the verbal expression. But the former relation is by far the most frequent; the personification of things, or of the causes of events, is the natural assimilation of the strange to the familiar, and this naturally happens when speech is there through the material which it offers, though this material is modified by the myth for its use. The stories, as well as the generic modes of expression, are taught, handed down, and felt in and with the language; they grow with the spirit of the people, with custom, with religion, but they fall apart from it when the common mode of thought becomes more sober, thoughtful and reasonable, when poetry elevates itself as art above life. The meaning of many words, once as real as that of statements about actual experiences, is diminished, they are no longer regarded as signs of realities, but only as signs of images, and so "thoughts that had once a more real sense, fade into mere poetic forms of speech" (Tylor). But on the other hand, language also makes, first myths, and then at least sensuous ideas of things which persist much more

obstinately than the myths. And apart from its personifications of the inanimate, the economy of language treats all processes after the analogy of animal activities, all that is thought after the analogy of what is perceived, all that is perceived after the analogy of the organic beings to which the "I" of the speaker himself belongs. But where there appear to be activities of things—an appearance often due to our mode of speech—then the inference is given *ab esse ad posse*, from action to the power of action, and thus the "properties" of the "thing," perceptible and concealed (occult qualities), become "forces," from which the actual events necessarily, or, at any rate, in a comprehensible manner, proceed. We may take it as a familiar fact that these interpretations through the vehicle of so-called metaphysics, penetrate deep into the sciences, and can only be weeded out again with great difficulty. By the attribution of names, natural thought immediately satisfies the recurring need for knowledge and explanation; and this is closely connected with that imaginative-poetic animisation of nature which is always drawing fresh material from it, even though it becomes gradually drier and more prosaic. Even after scientific thought has proceeded so far as in our days among the best educated, that need is still always satisfied, when the activity of a human being is asserted or indicated as the cause of a phenomenon; at most we ask perhaps about his motives, and these again we refer to names which denote something familiar to all, *e.g.* anger, revenge, love, hate, etc. Natural thought explains *everything* by this analogy; and in the form in which it remains current with us also, outside the sphere of human activities, it is satisfied by a reduction to the analogy, after we have ceased to believe in the anthropomorphic interferences of supersensuous beings. We find an oak-tree shattered. "The lightning has done that," "the lightning must have struck here with terrific force"—it is something of this kind which we say when we follow our natural way of thinking; the imaginative and superstitious man of earlier times or of simpler culture says and thinks, "Zeus or God is angry with the possessor of this plot of ground, so he has shattered this oak with lightning". But we may speak in this or a similar way even when we do not believe it, and then it is a poetical or rhetorical figure; from such a point of view and fiction there may finally arise a merely *metaphorical* expression, *e.g.* lightning has raged here. All *figures of speech*, of which the metaphor is by far the most important and most characteristic, have this in common,

that in them the words have a non-literal (*uneigentliche*) in addition to their literal meaning—the former is as it were to shine through the latter, in so far as the figure is to be understood. But it may also happen that the speaker does not *wish* to be understood, or at any rate not by all who hear him; he is content, indeed he prefers it, if only a few understand him, perhaps he even wishes not to be understood at all—that is, not in the complete way in which the non-literal meaning is included. He desires then only to understand himself, and to communicate his real meaning only partially or apparently, or indeed to communicate only the exact opposite of it. Thus oratorical diction, *e.g.* irony, and especially hyperbole, borders on falsehood, and passes over into it. Falsehood is a use of words for a private end which is alien to them (*i.e.* to the social will contained in them)—for the end of exciting by apparent communication of our own thought an idea which differs from it, and in extreme cases is opposed to it. Here again in this special sense it is the power of belief—or as we might say by an obvious simile, the credit which the speaker enjoys—which gives their true significance to the words. This significance differs again according to the personality of the speaker and the words he uses; the same words have the full weight of their proper meaning when it is an honest man who has used them, and are empty words in the mouth of a knave or a downright swindler.

47. We contrasted with each other as the chief forms of the social will which gives meaning to words, the *customary usage* of language, and *legislation* in language. We now see that "popular belief" and "science" correspond to each other as opposites in a similar manner. Both forms of the social will may be regarded as delegates, popular belief of the customary use of language, science of legislation; *i.e.* as deputies which, within the whole sphere submitted to the formative power of custom or legislation, are armed with a special mandate, which they fulfil by attaching distinctive meanings to groups of words. In its application to language we will call popular belief the *genius of language.*

48. There is still one important form of the social will to be mentioned, which is as much the basis of legislation and science as the natural, we might say, animal conformity, "agreement," is the basis of custom and popular belief. This form we call in its general nature "compact," and in particular application to the meaning of signs *Verabredung* (convention). If we presuppose completely isolated individual wills, then compact is the natural and necessary form in

which they "come together," the form of their connexion or union into a social will. This form presupposes the existence of two or more free persons, *i.e.* persons who allow themselves to be determined by their own wish to remain strangers or to come together. The given matter, *i.e.* the conceptually simplest content of the compact, is the *exchange* of things. Here two wills, which were before opposed, each wishing to attach the greatest value to *his* things, unite in agreeing that two things shall be of the same value, or where the expression of value in one commodity is customary, that a given thing shall be worth so *much*, *i.e.*, shall be *equal* in value to so many units of the standard of value, whether this value outlasts the act of exchange or not. But in the same way any number of wills may agree upon a standard or norm of value, even though the "how much" value of particular things must be left, either to the comparison, or more exactly to the measurement, of one or more persons, or indeed to manifold agreements. (The Greek language denotes such union best as "composition" *ξυνθήκη*—here the common will arises, as it were visibly, through the fact that several furnish thereto a contribution of their own will; and this can only take place by their "explaining" their will, *i.e.* making it known by signs. Such a sign may be the transference of a thing; but as an abbreviation, a spoken sentence, or finally a word may suffice. And it is only in words that the present will of a future will—a promise—can be expressed. Only in words again can an order, in general a proposition containing something willed for a time extending beyond the moment, be expressed. But such a one is the proposition about the value of signs, hence possibly also about the meaning of words. The *Imperative* concerning it either remains without expression, or it expresses itself in words). Measures, weights and coins, again, are signs, that is, signs of a covenanted or otherwise established *unit of measurement*, or of a compound of such, which certainly exists primarily only in thought.

49. Conventional signs between two or more are a matter known to every one. They are characterised by the fact that they may depart to any extent from the nature of natural signs and as a rule do so depart, more than signs of which the meaning is based upon the naturally growing social will. For instance, a stamp placed askew upon the envelope or a yellow rose in the button-hole, has not the slightest similarity or other relationship with the announcement "This afternoon at five, rendezvous in the confectioner's shop"; and yet both may serve the purpose of such an announcement

excellently, if only there has been a previous covenant. The power of the human will to *make* something into a sign here appears in its elementary (socially effective) form. The convention again about the special meaning of *words*, even of otherwise meaningless words, plays an important part in the social life. Especial occasion for this is afforded by the speedy but expensive communication between remote places; *e.g.*, in the intercourse between England and India there arises a conventional "cable-language," at first perhaps within a family or a business, so that the syllable "tar" may have the meaning given to it beforehand "I have arrived safely," or the syllable "ver" the meaning "The price of silver is rising". It is a short step from this to make such signs as a means of secret, *i.e.*, exclusive, understanding, as opposed to the public common property of the popular language. In this sense there is a much older and larger application of *written signs*, which get their special value in the same way as the means of *secret* notifications and communications. But all such systems of private signs, like writing itself, presuppose an existing *language*, and refer to it, so that they represent *signs of signs;* in abbreviated writing, such as stenography, they are as it were signs to the third power. The sign-quality of the original sign may be completely forgotten, and is generally forgotten; indeed it may be stated as a rule that in so far as they are accredited through a *natural* social will, they have never been in clear consciousness as *willed signs*. This is quite clear when they are felt as, indeed taken to be, natural signs; to which individual as well as social habituation conduces. On the other hand, it belongs to the *nature* of the *derivative signs* here under consideration to be thought and willed *as signs*, hence as means for common ends, by those who give them their meaning. Others indeed, who have not been active in this direction, may *accede* to the content of such a convention; they then take it into their will without needing to reflect upon the nature and origin of the signs, which may therefore become as natural to them as the "mother-tongue," and the habitual forms of intercourse. But not even *origin* is decisive for the *conventional character* of signs and sign-systems. Whatever their origin, signs may *become* conventional, through the fact that they are felt, thought, applied as such, *i.e.*, essentially as external means. This is clear in the forms of intercourse themselves. We may maintain a naïve and credulous attitude towards them, taking assurances of esteem, reverence, sympathy, as sterling coin, and returning them only when we *can* utter them with "a good conscience,"

i.e., when our thought assents; then we have a right to be wrathful at social lies. Or again we may give and take them as mere "tokens"; we know that they are nothing but means of expressing a readiness for intercourse, and of proving that we belong to a certain society, especially to that which calls itself good society. For this, according to its concept, there is only the one way, that of observing its rules, and one of these rules is the use of such modes of speech. They are not *meant seriously*, they are mere forms, without any content, or without any corresponding content, "hollow phrases" or whatever we may choose to call them. But whoever plays the game must submit to its rules. It is clear how this use of words is related to that of figures of speech. Here as there, transitions into the sphere of falsehood are easy. Falsehood emphasises the ordinary meaning, the literal sense of the words, and demands that this should be accepted, believed; what the liar has in his mind is not the non-literal meaning, but none at all. But lying is greatly facilitated by the figurative meaning—think of the rhetoric in the oaths of love and the asseverations of friendship. It is facilitated also by the social significance, or rather depreciation of words. A man endeavouring to obtain advantages by the use of flattery may limit himself to employing turns of speech which are current in his society; he merely needs to utter them with a special accent, with the warmth of tone which is wont to "come from the heart"; while if any one should seem to suspect him he can always take refuge in the plea that he has only been using the ordinary conventional language. The variations which may be observed here are manifold.

50. In this sphere, then, portions of the current language are, as it were, damped and kneaded into a dough; and it is possible also to have a whole language in which all word-meanings would have a conventional character, whether they refer immediately to objects, or (what is more probable) to many empirical (natural) languages. Old and new attempts to construct a *universal language* correspond to a thoroughly reasonable and necessary idea, which in the present extension of intercourse will sooner or later take deeper root and make rapid growth. We cannot indeed deny that in many respects it would be better to elevate a given, natural language to the rank of an *international* means of communication; and towards this end economic and political developments are pushing powerfully forward. Most indications are in favour of the English language, which happens to have certain constitutional advantages for such a universal social use, advantages which make it also more easy to learn than other

modern languages. We are to-day inclined to forget that our life of culture still has all its roots in a condition which was characterised by the universal predominance of such a language—of Latin; that many most important remains of this predominance still exist; that in certain spheres, *i.e.*, as the language of courts and of diplomacy, it was directly succeeded—in the seventeenth century—by French, and that this language also still retains a high degree of international application. In all these cases we have good ground to speak of a "conventional" acceptance. The relation which every one feels to a foreign language, especially when it has not yet "entered into his flesh and blood," is very different from his relation to his mother-tongue; the former resembles more the use of an instrument, the latter the use of an innate organ. Hence also when several people together use such an instrument for their mutual understanding, they are related to it as if they had established the meanings of these signs by agreement. At first, indeed, they are chained to the spirit, *i.e.*, the will or associations of this foreign language; but the more they express their particular common affairs in this material, the more easily they handle it with a certain freedom, without meeting the hindrances which the "language-feeling," the habit and memory of the rules of their own language, opposes. But even in the mother-tongue there is developed by "business," *i.e.*, by all human intercourse in which each consciously pursues his own profit, an invention and use of words and turns of speech having a specific acceptance, which is similar to a conventional one. The social will contained therein differs from the naïve impulse to form language in its "reflective" nature; it is conceivable in its ripe form only upon the basis of an old culture, its language is essentially a written language, its style a paper style.

51. The free handling of a given material is characteristic for all forms in which a free social will shapes itself; but such a one is the will which must be reduced to the acts of the allied individuals themselves. We include here both the will which attains to expression in a normal legislation, and that which attains expression in a normal science. It is clear how legislation *can* proceed from convention. When any society elects a Commission, and instructs it to draw up the conventional rules accepted in it, altering them as may seem good, replacing the less expedient by the more expedient, and determines unanimously to conform to these *new* rules—then this Commission becomes a legislative body. Such an origin and authorisation of legislation is here

thought of as a normal case. It is true that in experience we find individuals and bodies who vindicate their right to issue laws in quite another way, preferably by a supersensuous ordering of things (*Jus divinum*). But experience teaches also that legislations of this kind aim far more at maintaining given conditions and habits, than at free, purposive, conscious innovations. They invariably belong to that form of the social will which we have called popular belief. This is indeed—even in its relation to customary language—formally free to create and to shape; but it is avowedly and essentially prejudiced in favour of the *old*, as that which is approved and consecrated, without reflecting upon its utility with reference to particular ends. Even the *speech* of religion is archaic, and not seldom uttered in language which is comprehensible only to the initiated and learned. Such is the language of the sacred art of pious song; elsewhere the development of language, as of all sign-systems, aims at abbreviations, but here preference is intentionally given to long stretched-out forms as to those which are traditionally solemn. Speaking generally, the "legislation" which is accredited in this way extends more to the forms than to the content of life. It is thus in close contact—and this is entirely true of popular belief—with convention, so that the conventional is often "only" another name for that which is held to be sacred. Convention also is primarily, and to a certain extent always remains, "conservative," hence the "stiffness" of "etiquette," the circuitous, ceremoniously solemn form of the language of old-fashioned courtesy, epistolary style, etc. But it is also natural to it to break away and to become a capriciously mutable, novelty-seeking "fashion". *Law*, again, as practised and spoken, taught and explained, on the basis of customary law, moves between popular belief and convention with a much stronger preponderance of that preference for the old. So too the special *language* of law, which as technical approaches to learned and sacred language, but then as the language of a caste (of an order or faculty) is appropriated and transformed in a more free, *i.e.*, more conventional way. Then too conscious legislation deals with it quite arbitrarily—this we already presupposed—as it does with the law itself and in close connexion with it. We have said that in its free handling of the given material of thought and speech *science* resembles convention and legislation. Here again, as with legislation and strictly speaking with convention also, it is our *concept* of science of which we are speaking. That which in customary language is called so (at any rate in

German), *e.g.* Theology, Jurisprudence, political and moral disciplines, is not (in our sense) *free* science; it has so far remained fettered to tradition and popular belief, often also to convention and legislation. Mathematics and the mathematical sciences correspond most closely to our concept of science. Everything which is *called* science, like everything which is called art, has its *terminology*, its technical concepts. But for the most part these are not concepts in the sense we are now using, but only special names for special objects —things and activities which, in the experience of those devoted to such arts and sciences, have prominent significance. This in no way involves that those things and activities are not objective, therefore given for every one. It is different in science properly so-called. It (that is the mental activity devoted to it) *forms* its concepts, exclusively for its own ends, as mere things of thought, indifferent whether they occur in any experience, even knowing the impossibility of such occurrence. The natural growth of universal concepts, better called universal ideas, is not generally, or at any rate not with sufficient clearness, distinguished from this artificial, conscious formation of "*abjezogener*" (as in the last century "abstract" was translated into German) *concepts*. The natural growth of universal ideas precedes the growth of particular ideas; the former is an incomplete defective idea, with which an appropriate *name* is regularly attached to a few or even to one single prominent characteristic of perceived objects. Characteristics are, as the word (*Merkmale*) indicates, marks to help the memory, and indeed for the speaker they are the immediate causes of the name occurring. All names are originally both proper names and generic names. The often-cited instance of the little child who calls every man "papa" who does not by a new characteristic excite new feelings, is typical of the connexion of general ideas with names. Every apperception-mass (in the sense of Herbart and Steinthal) which, once connected with a verbal sign, sets free the idea of this verbal sign when it is excited by actual perception, is a universal idea. The progress of knowledge attaches itself to the possession and knowledge of several names for the same object, to the distinction between them, *i.e.*, reference to different grounds or simply to the fact of being so-called; it is therefore connected also with the knowledge of *different* names for known objects in so far as they differ from each other, as with the knowledge of like names for the same object in so far as they are in some way similar to each other. To think of a condition as

yet untouched by anything which we can understand as science, the child is taught that this dog is *called* "Phylax" (without needing to learn the ground for this name), just as it is taught that both this animal and those which accompany its neighbour on the chase "are dogs," *i.e.* have this name in common. The difference is, that in order to apply *this* name rightly the child must learn to know the ground for it. We do not call all four-legged animals "dog," but these with the grave looks, which attract attention by their "barking"; other larger quadrupeds with manes are called "horse," while both dogs and horses are called "animal". Upon the ground of this easy discrimination by rough universal ideas, there begins with the learning of characteristics which do not force themselves upon immediate perception, the more specific naming of particular groups within an already established whole, and the comprehension of several wholes within the limits of larger wholes; for at first it is true that the more universal the idea the more indefinite. But while all *practical* knowledge consists and develops in the knowing of these *specific* universal ideas and names, *theoretical* interest depends much more on generalisations and their more accurate grounding and determination by actual characteristics. Thus side by side with the universal ideas, such as horse, dog, animal, which are elaborated into concepts, there arise new concepts, which afterwards become universal ideas, such as mammal, vertebrate mollusc, and finally concepts of living beings of which not only do the common characteristics remain unknown without study, but which are themselves imperceptible for the natural senses, *e.g.*, the concept "bacillus". But in all these actual constructions of concepts nothing more takes place than the connecting of many presented objects into a single new apperception-mass, which possesses fewer characteristics in proportion as it is more universal. There is no essential difference when the objects or concepts are not things, but qualities or events. They are always just particular—sensuous or non-sensuous—impressions, to which there is attached a name, which now shows itself to be applicable to many such impressions. None of these concepts, any more than the natural universal ideas, are "abstract" concepts in our sense, but the names attributed to them denote many concrete objects in reference to certain characteristics common to them all. Of course it makes a great difference whether we *intend* to denote objects or ideas; the universal is not in the objects, but in the ideas.

52. We do not form an "abstract" concept until with the

name there is "invented," *i.e.* made and constructed, the *object* to be named; so that here idea and object coincide—whether the object is thought of as thing or as event. That which we desire to say of the concept we must apply immediately in the construction of our concept of the abstract concept. We define the abstract concept as a work of art of scientific thought, but scientific thought as an operation with such creations by *comparing* them, partly with one another, partly with concrete concepts or with particular ideas. The abstract concept is an object to which any characteristics are given, whether presentable to sense or not, whether found connected in reality ("in experience") or not; it is determined only by the end which the creation is to serve, and this end is knowledge of the *relations* between objects experienced, and capable of being experienced. There stands therefore at the head of abstract concepts, the concept of the simply thinkable, to which any name, *e.g.* A, may be attached as representing it. The operations of scientific thought begin by equating this concept to itself, which takes place through "words" in the form of the judgment A = A, the so often misunderstood proposition of identity. The proposition signifies the will of the scientific thinker to treat his concept as equal to itself, *i.e.* not subjected to change; and this will claims to be a *valid* will, because it is appropriate to that end within wide limits. For in a certain degree it is true that all objects of experience are not subject to change, *i.e.*, they may be so thought of, and this thought again serves an end, is indeed necessary, because it is only upon this assumption that we can *compare* such objects with concepts and therefore with each other. For the comparison of objects of experience is completely effected by referring them to the thought-object and expressing them therein. The thought-object is a standard. It may be described as an individual. While the universal idea becomes poor in characteristics in proportion as it is wide and more general, the abstract concept, no matter to how many phenomena it is to be referred, may be as richly furnished with characteristics as the end demands. It represents its own idea, the idea of a universal which is at the same time singular (particular); it is itself a sign, a symbol, and nothing else. It serves its end the better in proportion as its characteristics are clear and determinate, and in proportion as they are conditioned by each other and therefore referable to each other in equations; on the other hand it becomes useless if its characteristics are even in thought mutually exclusive, or—what is the same thing—contradict each other.

53. *Definitions*, according to the ordinary meaning of the word, are nothing but explanations of words which denote universal ideas. They are then meant to state what is comprehended in these general ideas. The old rules are familiar, that this must be done by combining the genus with the specific difference, and its corollary: that the definition must not be too wide, nor yet too narrow, hence that it must exactly cover that which the word really means. The investigation of the meanings actually accepted, *i.e.*, almost always in customary language or in some particular branch of customary language, is in itself an important scientific problem; but it has nothing to do with pure scientific thought. In this application the problem is generally confused with the quite different one which supposes that the person defining is to state in what sense he wills to use the general name. We say the problems are confused, for in the first place we are far from being always conscious of the difference, and in the second place it is expected that the scientific subject shall not behave as if he were sovereign; *i.e.*, that he should keep as closely as possible to customary usage. It is even assumed that the person defining apprehends his problem *best* when he really only unfolds the customary usage, in other words, when he thinks what every one thinks. If now it happens that a fluid and manifold usage is brought into a fixed and uniform form, then indeed such a limitation of the meaning may suffice for many ends. It is in this sense that laws determine the meaning of words; but then the theory breaks down that we are dealing with the *explication* of usage; it is manifest that we are aiming at establishing indisputable limits within which the law shall hold. Quite analogous is the end to which scientific definition must *always* refer; the fixing of a meaning within a train of thought, hence within a book, a system, etc. In coining a scientific *concept* therefore, we do it upon our own responsibility and with complete freedom in respect of customary usage. This is what Pascal means when he says: "nothing is more free than definitions". And so the more acute logicians have always seen that scientific definitions are propositions, the truth of which rests upon the will of the person advancing them. Even if a name already denotes a concept in some (*e.g.*) scientific usage (*i.e.* denotes a definitely limited universal idea), still the person defining must appropriate this concept and the name, if the definition is to hold in his mental context also, *i.e.* is to be true for him. But free definition is completely necessary when we are operating with those works of thought of the individual

which we here call *abstract* concepts. Such a definition is *more* than the explanation of what a name ought to mean (and still further removed from that which it may mean "in reality"); it aims chiefly at *describing* the matter, *i.e.* the object thought of, and then assigns to it, as an abbreviated mark, a name which is best chosen arbitrarily as one free from every other meaning. The description is here not merely a statement of limits, which must essentially refer to the comprehension of the concept; but it is as complete as possible a determination of its content, without regard to what the comprehension may be. It is only a make-shift when it is expressed in (not-defined) words of customary usage; science avails itself of this when and in so far as it has no other expressions defined by itself. Sigwart expresses this exactly in the words: "every definition presupposes a scientific terminology".

Note 1. Like other modern logicians, Sigwart distinguishes from merely analytic definitions "in which the value of a word is expressed by an equivalent formula," synthetic definitions, "which introduce the term for a new concept". But he does not notice that all definitions of scientific meaning are, at any rate in intention, synthetic definitions, and must be estimated by this idea; nor that in the postulate of real-definitions we are dealing with nothing else than with these; although he speaks in the context of formulæ which "are externally like a nominal definition, but really different from it," yet he holds (a few pages before) that the concept of the so-called real-definition "has no longer any meaning for us in logic".

Note 2. The doctrine of Bishop Berkeley that nothing general can be thought, can only be disputed when it has been agreed what is meant by general and by thinking. But when he gives as example (and is followed therein by more recent writers) that we cannot *have an idea* of a triangle which is neither equilateral nor scalene, etc., then this is indeed true, but proves nothing. For no one will maintain that there is a natural universal idea of the triangle; but concerning the abstract concept triangle this is in fact sufficiently described as a plane surface enclosed by three straight lines, if the concepts of straight and of lines have been previously defined. The different sorts of triangle which are actual in idea or in diagram, are not related to the concept as species to genus, but are copies or realisations of it (in the first and second degree) and as such are, *for and with reference to* the concept, all of one kind. For the rest they are related to it as isolated experiments to an *ideal case* thought *in abstracto*.

54. But how far that which is valid in science is thought as valid by the social will, we still have to consider briefly, after we have first dealt with a most important *other sign.*

55. It is almost traditional in philosophy to compare words (or "concepts," only then we merely mean the names of the concepts) with *money;* as indeed we have already done in this essay, when—*e.g.*—we said that conventional forms of speech are sometimes taken for "sterling coin". The analogy is really far-reaching. It is essential to the word as to money that it is a sign, and that it shall be "valid" (in German *gelten* from which the word *Geld*), *i.e.* that they shall be through the social will substitutes for the objects of which they are signs. The *word* is the sign of objects as images or ideas; money is the sign of objects as values; *i.e.* in so far as they are thought of as useful-agreeable, and therefore make an impression upon what we may call in men will or endeavour, in short are affirmed. But we can without difficulty extend the analogy to the different senses in which money, like the word, has "meaning". In case A, it has its meaning through the natural social will, *i.e.* all coined money; in case B, through the artificial social will, that is all paper money. Just as the names of concepts may empirically be almost all derived from natural language, so also paper money has empirically a meaning through the fact that it is referred to "natural money"; but as in idea the names of concepts refer directly to artificial, constructed, and therefore equivalent objects, so also paper-money may be necessarily thought of as referring directly to artificial values, *e.g.* to equal hours of human labour. The antithesis demands somewhat closer consideration. As the word develops out of something which is not yet a word, so money develops out of that which is not yet money. Money is originally not different from other values, and then only slightly different. It is well known that in lower stages of economic development many values have the functions of money. "How quickly the saleability of an object makes it possible to naturalise it as money, is shown in innumerable instances by the reports of modern travellers" (v. Phillippovich.) Here the social will differs little or not at all from social practice, just as the individual will at its lowest stages is only the feeling of activity and the feelings necessarily developed from it of checked activity (pain) and facilitated activity (pleasure). But (2), "practice and custom have gradually raised the most saleable commodity (it should be the most saleable commodities) to a universally used medium of exchange (rather, to universally, *i.e.* within certain circles of intercourse,

valid mediums of exchange)" (v. Phillippovich). These commodities are the metals, and with increasing property the precious metals. Then comes the guarantee of the community for a given weight and given content. In Asia Minor "coinage developed by marking pieces of metal of a given weight with the arms of the city community, which was coining, as with a kind of common stamp" (Nasse). This guarantee is essentially a moral one, and therefore in fact always religious. The word Moneta which has gained universal significance by its passing into English (money), comes from the temple of Juno Moneta, the original Roman mint. But with the guarantee of public credit there is opened the door to deception and falsehood; here come in the historical debasements of the currency, which have played such a discreditable part, chiefly in times of transition to the modern state. The State, generally represented in its first phase by princes and their war-chests, lends value to the coins, not so much by moral guarantee as by force, which makes the universal medium of exchange into a legal medium of payment. The nature of this constraint first shows itself in its pure form in giving value to paper, by which printed notes are made into legal tender and are thereby also made current; their actual value being conditioned not so much by the moral as by the mercantile credit of the Government. This mercantile credit is the basis of whatever value substitutes for money may have, whether they are written, printed, or lithographed paper. It makes also *conventional paper-money* (whether so-called or not) in the manifold forms of circulating credit, and it is this which we regard as the earlier stage of a state paper-money. Here belong "bills of exchange, orders, cheques, coupons, stamps," and characteristically also "convertible state paper-money"(A. Wagner). Quite similar again is the bank-note, which is issued by a bank having a monopoly of notes, when the State has handed over to the bank the power of regulating the notes. But the management of every large bank, in a far greater degree than the management of any State, takes place according to *scientific* principles, especially according to the rules of the calculus of probabilities. We may call the bank-note (in accordance with its idea) scientific money. It is for this reason that philosophical schemes for a reconstruction of economic society are so often and easily connected with the thought of a purely credit-system, which is conceived of as a synthesis of the natural and the money system. The social value-sign would—like paper-money—derive its validity *only* from the social will;

but instead of referring to money—the half-natural sign of all values—it would refer like money *directly* to all values. Values are elsewhere made equal by exchange, in general therefore by trade; their equality has the conventional character. Here, on the contrary, an equation of values would take place according to scientific principles; values would all be referred to the necessary work incorporated in them, while the work again would be most simply referred to the average *time* of work. We often find a compromise between the former real and the latter ideal equation, *e.g.* in the legal determination of honoraria, or of official salaries, and it is also the basis of legal limitations of hours of work, and other interferences with free contract as the price-regulator of human labour. But the idea of reference to a "congealed labour-time" may further be aptly compared with the titles of property and claims which are both current in trade and legally valid; these have a reference indeed to a sum of money, but in pure titles to property (deeds) this reference is insignificant compared with its significance as participation in a *capital*, which figures only in the *account* with its money value.

56. The many senses in which we can say of a word or other sign that it has *meaning*, may then be classified as follows:—

1. Meaning according to the intention of the individual making use of the word or other sign (subjective meaning which is put into it).

2. But this meaning is essentially conditioned for the word, as for all socially *valid* signs, by the meaning which they *have* in regular usage (objective meaning). But the objective meaning is essentially different according as the social will which we regard as its originator develops this meaning by creating it together with the sign, or has assigned it for definite purposes to the sign. We call the former the natural, the latter the artificial meaning. The former is modified according to three forms of the will upon which it is based, and which we distinguish according to a principle which corresponds in the first genus (A) to the division of volitional actions into impulsive, habitual, and reflective; they were called, natural harmony, custom, belief, or in reference to language the impulse to form language, the usage of language, the genius of language.

57. But the forms of the social will of the other genus (B) were distinguished in an analogous manner according as it:—

1. Proceeds at its earliest stage from the individual will (sensuous stage);

2. Is represented by a constant recognised (Träger) wielder;

3. As thinking is represented by several, even if not recognised, subjects (purely intellectual stage). Thus we distinguish convention, legislation, science, which in application to the meaning of *words* we may call—

Agreement—Determination—Definition.

Now we must briefly show how to the kinds of meaning which are thus classified there correspond different methods for communicating and explaining the meaning of words and other signs. First of communication, and primarily with reference to words; here we must observe the speaker or writer. At the first stage communication, and correspondingly understanding, is *easy* under certain primitive conditions.

1. It is easy in proportion as there is intimate mutual affection, sympathy, or even mutual knowledge and familiarity. How easily here every sign is understood, every indication suffices, may be noticed in daily life even where language is fully developed, *e.g.* between lovers or married people, or among intimate friends, etc. The meaning of the word is here generally allied to and interwoven with the meaning of the sound, therefore with music, the "language of feeling".

2. It is easy again in wider range, in proportion as the vocal signs approximate to the natural signs (expressive and imitative sounds).

3. It is easy in proportion as they are supported by other signs, especially by *gesture language* (demonstrative sounds), or again as the merely *associative* sounds are supported by these and by the two kinds already mentioned. Communication is inversely more difficult, needs therefore the corresponding aids, where it lacks these. Gesture language most commonly appears as a substitute understood by every one where word-language is wanting or defective, or fails owing to organic defects. But in written communication the aids mentioned under 1. and 2. disappear; we can only indicate the desired intonation, partly by special signs, partly by the construction of the sentences. The understanding of what is written may further be facilitated by illustrations—from which writing is derived as articulate speech is from inarticulate—or under some circumstances be replaced by them. At this stage therefore communication is attached to individual and natural conditions. Its language (which is largely understood) is not yet a complete social organ, of which any one, born and bred in this

society, makes use with comparative ease and certainty. This is the case in proportion as the customary usage of language has become a power. Here a mass of fixed meanings has been elaborated, so that word-idea and object-idea are regularly blended. Nevertheless, in many expressions, especially those which are more remote from everyday life (the expressions of complex ideas) the customary usage is uncertain, and leaves therefore greater freedom to individual application. The more this freedom is used, the more the speaker has recourse to the conditions of the first stage, or must explain his thought (*i.e.* the meaning which he desires to see attributed to his words), in more ordinary words, hence in words more firmly established in usage, he must as it were "translate" them (explicate the complex ideas). The language of customary usage as a universal opposed to the many dialects, distinguishes itself in advanced states of culture as the *written language* from the *language of intercourse.* Here the communication of an individual meaning in a social material is indeed still liable to all the defects which are inevitable in using signs of signs; but knowledge of the language as fixed in writing forces us also to a more conscious subordination to the norms and rules which are imparted by teaching, and the observance of which again facilitates understanding, hence social application. This is true again of oral communication at the third stage. Communication here takes place to a large extent in fixed forms, which are consecrated by age and authorities, and are therefore handed on as valuable inheritances and familiar to every partaker. Here too the communication of ideas which predominates at the second stage is connected with the more easy excitation of feelings which characterises the first stage: of social feelings of a more differentiated kind, we may say of *festival-feelings.* In so far as this is what is realised, it is not hindered by the language being less comprehensible, or even incomprehensible; it then misses its proper determination, the words being reduced to the associations of their sound-meanings. Allied to this again is *poetical* language. Although like all art it is originally strictly fettered by popular intuition, tradition, culture, it still inclines in obedience to its imaginative inspiration to a freer use of language, and so becomes more hard to understand, unless this tendency is again frustrated by the imagination to which it has recourse in figurative expressions, in comparisons, in rhythm and metre. True poetry is the purest form of the genius of language itself.

58. In written communication again, artistic, elevated or

beautiful speech lacks the best of its means of expression. Where nevertheless such speech is to serve for permanent record, hence for the understanding of later generations, it has recourse, partly to short comprehensive formulæ and to "symbolic actions," the meaning of which is more easily comprehensible and preserves its meaning better; partly to diffuse "circumlocutions". Hence we get the brevity of the lapidary style side by side with the breadth of the legal style—both aim at a deep impression of the meanings of their words. The language of writing is considerably influenced by these styles, and still more by all artistic styles in the use of words; and thus its reaction upon the oral use of language is increased.

59. The following stages correspond in a certain degree, as we have already noticed, to the three first; but they stand also in a social connexion, in such a way that the fourth in the whole series attaches itself to the third, the fifth to the fourth, etc. All three of the later stages presuppose in general a high culture, a language elaborated to a manifold use, hence also a written language. We have already said that they make free use of language as of an instrument; the word is consciously formed as a means to the end of communication. Hence all unessential "accessories" fall away, which express feelings and excite feelings; language becomes prosaic, and the "dry" written expression is therefore adequate; the individual element is submerged, and definite social styles, forms, and methods rule as patterns—and this all the more in proportion as what corresponds to these ideas presents itself clearly in reality. On the other hand we find just here a basis of developed individualism or egoism—endeavours which will succeed at any cost, hence also at the expense of others, and which regard even social ordinances and rules only as means to their ends, and subordinate themselves to them only unwillingly and conditionally. Thus the social and individual principles balance and struggle against each other, the sharp accentuation of both leading to antagonism. From this it follows for communication in words that here again understanding is only easy for one who knows the "language," but also the ideas; often indeed it is only *possible* through a process of "initiation". For the rest, it is to a large extent further conditioned by knowledge of the *personality* of the man who is uttering his will or his thoughts. It is from his trustworthiness that we must know whether he is concerned to communicate something real, or whether he *desires* only to reiterate meaningless conventional *phrases*, if not actually to

deceive or at any rate to express himself ambiguously. In the same way we must know whether the legislator is laying traps or snares by using ambiguous words (we remember the so-called "elastic paragraphs"); whether the scholar is intentionally shrouding himself in obscurity, and increasing the volume of words because concepts fail him. It is always here, especially when we have only the written signs of the words, that the widest field remains for explication (interpretation). This is essentially always translation into a more easily understood language or mode of expression. Generally speaking it is the more difficult within the same language, *i.e.* within a formally connected system, in proportion as the words have diverged from the social will originally contained in them. Hence the methods of interpretation are, (1) at the first stage Etymology; (2) at the second, inquiry into the best, *i.e.* most fixed and regular usage; (3) at the third, the fundamental intuitions, opinions, comparisons, images, etc., by which we can derive special meanings from general, higher from simpler, nonliteral from literal. Such derivation comes into play also at all the following stages. Here we must investigate, not only the original but also the most recent, modern sense, which the words are meant to have according to the intention of the conventionally bound individuals, according to the intention of the legislator, according to the intention of the scientific authors. It is chiefly *concepts* which are here denoted, *i.e.*, mental constructions of definite intention, which can only be explained in the words of ordinary language (1-3). In proportion as these words are ambiguous, of uncertain origin, wavering in usage, and figurative, a clear and certain interpretation is difficult. Hence the abundance of *commentaries* and of *controversies* upon ritual prescriptions of all sorts, after they have grown conventional; upon codes which attain or are to attain the force of law; upon philosophical systems in proportion as these are unhesitatingly recognised as valid, as for so many years were the Physic and Metaphysic of Aristotle; as recently upon Kant and for some time upon Hegel. So too poets and other authors who are held to be "classic" need explanations of *their* use of language. Holy books again and "oracles," which *wilfully* make use of ambiguous words.

60. We need only refer briefly to the fact that the analogy between the sign "money" and the sign "word" may be also extended to the kinds of communication and explanation, although this analogy cannot be carried into detail. In narrow circumstances of life, where needs are homogeneous,

permanent values are easily accepted as money; where development is more advanced only pieces of metal. But these the individual must test as to content and weight, until the guaranteeing stamp facilitates currency, and makes money the equivalent of all values. Generally no doubt is raised, although forgery endangers every one who partakes in the interchange. *Paper-money* is strictly speaking only a reference to money, thus a sign of a sign, but it may be a complete substitute for it, hence also it may stand for all possible values. It is still more exposed to forgery than coin; but more especially the danger is heightened of an injuriously increased output, which depreciates each unit, *i.e.*, depresses the actual value which is recognised as reasonable below its "nominal value". We may compare here the superfluity of words which is fraudulently or carelessly issued by orator or writer; and credulous commentaries thereon may well be estimated as the simplicity of one who has let himself be talked into accepting assignats, and thinks that they must be accepted from him again at their full value, because this value stands there printed and confirmed by stamp and signature.

61. In this context it still remains to explain the sense in which we have determined "science" as a form of the social will; the sense therefore whereby conceptual names receive their meaning, or let us say their currency. For this sense is in its normal form completely *conditioned* by the methods of handing on and interpreting such meanings. At earlier stages this is not the case. It is true that at all stages teaching is combined with the other ways in which the public or secret meanings of words are made known or become known; but at none does it exclusively form the essence of the social will, so that this will arises, is maintained and propagated by teaching. But of this nature is science. By teaching a community forms itself, which shares in the possession of its concepts; *i.e.*, in knowledge of their meanings, and in the art of operating with them. We found that for the (corresponding) third stage also teaching was characteristic; but there it is only the appropriate form of tradition which, in its less developed form, promotes spontaneous imitation by leading up to it. The social will, which we there defined as belief, exists before it and itself conditions it. But here it is thought—this again is only an ideal limiting-case—that the social will is primarily represented only by the individual person of the teacher; around him there gather the scholars, who acquiesce of their own free insight in the recognition of the concepts formed by

him, and agree that their signs shall hold good. Here teaching is far from bringing about a belief *in* the signs, participation in their special and consecrated or even only æsthetic meaning. For it the signs are in and for themselves completely indifferent, they are nothing but signs, *i.e.*, *means* for naming, without any "inner value". It is thus that we distinguish the concepts, and we are not inquiring here how the kinds of teaching are really related to each other; but we easily see that it presents numerous transitions from the one genus into the other. On the other hand it is clear that the "free assent," which Locke so earnestly recommends those who seek the truth to handle carefully, is founded more upon doubt than upon belief, but that it must before all be given to those concepts which are contained in judgments; that again it is this free assent which stamps concepts into *conventionally* valid means of knowledge. As a matter of fact free persons can, without being related as teacher and pupil, come to an agreement as to the validity of concepts and make compatible the meanings even of these words. But by the abstraction of science we express the thought—to which a wide reality corresponds—that the construction and coining of concepts is always originated by individuals of genius, who therefore to a certain extent, and primarily in their own school, occupy the position of legislators. Though in this sphere as in every other, tradition and blind belief play an important part, yet in a period of scientific life the development, transformation, and renovation of concepts, like the revolutions of industrial technics, is most widely open to observation. "The more of spiritual life a period contains, the more it will change the received condition of terminology" (Eucken).

II.—ON THE RELATION BETWEEN THE PHILOSOPHY OF SPINOZA AND THAT OF LEIBNIZ.[1]

By Robert Latta.

It is not my intention to reopen the purely historical question regarding the actual intercourse between Spinoza and Leibniz and the particular ideas or suggestions which Leibniz may reasonably be held to have directly borrowed from Spinoza. On this point it would hardly be possible to add anything to the thorough work of Prof. Stein in his *Leibniz und Spinoza*, which seems to me to prove conclusively that Leibniz was no more a plagiarist of Spinoza than he was a plagiarist of Newton, but that he was "philosophically *homo sui generis*," strongly influenced by thinkers like Plato and Spinoza, yet in his philosophy neither Platonist nor Spinozist but always Leibnitian.[2] A few of the historical facts may, however, be mentioned as having suggestiveness in connexion with the large problem of the relation between the two systems. About a year before Spinoza's death Leibniz saw him at the Hague and had several conversations with him. At this time Leibniz was without a philosophical system of his own, dissatisfied with Cartesianism and ready to receive suggestions. He had just completed a long course of mathematical study by discovering the Infinitesimal Calculus, and on the way to Holland he wrote a paper on the principle of motion, doubtless with the view of getting Spinoza's opinion about it. This question of the laws of motion (in view of the theories of Descartes) was one of the two subjects which Leibniz mentions as having been discussed in course of the conversations at the Hague, the other subject being that of the necessity of the existence of an absolutely perfect Being.[3] In general it is clear from the evidence adduced by Stein[4] that Leibniz made a most careful study of most of Spinoza's writings and that he regarded Spinoza's as the best of modern systems with the

[1] Read before the Aristotelian Society. [2] *Leibniz u. Spinoza*, p. 134.
[3] *V. infra* pp. [4] *Leibniz u. Spinoza*, p. 236 *sqq.*

exception of his own Monadology.[1] "Spinoza would be right," he says, "if there were no Monads."[2] And it is interesting further to notice that the doctrine of Spinoza which most repelled Leibniz was his denial of final causes, and that in almost every philosophical letter written by Leibniz from 1679 onwards the idea of final cause appears.

My purpose in this paper is to consider what light may be thrown upon the two systems and their relation to one another by taking account of the general scientific thought of the time. The dominating science of the seventeenth century was Mathematics, so that for a seventeenth century writer exact scientific method was synonymous with mathematical method. The endeavour to make an exact study of external nature, which was one of the first fruits of the revulsion from Scholasticism, led inevitably to the development of Mathematics as a science of calculation or measurement. Problems which formerly had merely a speculative interest now pressed for immediate solution, and the practical necessities of physical science led gradually to the development of new mathematical methods, such as the introduction of the notion of "infinity" by Kepler, the Analytical Geometry of Descartes and the Infinitesimal Calculus of Newton and Leibniz. Both Spinoza and Leibniz were mathematicians and as mathematicians they shared the ideal of their time, that of a mathematically exact and certain system of knowledge, a comprehensive "scientific" philosophy. They were both interested in mathematical problems, but from somewhat different points of view. Spinoza was chiefly impressed with the certainty and necessity of such geometrical demonstration as that of Euclid, which proceeded from self-evident axioms and unfolded with rigorous truth the attributes of certain objects from precise definitions of them. Leibniz, on the other hand, was more interested in the progress of Mathematics than in the security of its established methods. He sought to grasp the real nature of matter and he found the current Mathematics too abstract to be sufficiently serviceable. Atomism (as in Cordemoi, Gassendi and others) had charmed him for a time, and the metaphysical problems of the Eucharist (in connexion with the question of the reunion of Christendom) impelled him from another side to the study of matter. But Atomism represented matter as too absolutely discrete while Cartesianism made it too smoothly continuous, and some advance in mathematical method was necessary in order to reconcile the discrete and the

P. 252. [2] *Lettre à Bourquet* (1714), Erdmann, 720; Gerhardt, iii., 575.

continuous. Thus while Leibniz is at one with Spinoza in seeking not mere speculative probability but "demonstration" in philosophy, he is not to be regarded as thinking of demonstration in exactly the same way as Spinoza did.[1]

The form of Spinoza's *Ethics* makes it evident that he regarded demonstration in philosophy as a process analogous to the synthetic method in geometry, which endeavours to apply a canon of pure self-consistency to a variety of given geometrical figures. The aim of the inquiry is to ascertain the properties or qualities of the figures, and a property is shown to belong to a figure when it is proved to be consistent with the definition of that figure. Each kind of figure is treated as a distinct and separate species and their interrelations are considered in a purely external way. The demonstrations are supposed to be pure, direct deductions from given premisses. But in reality there is a continual reference to experience, to the system of space, certain of the relations of which are expressed by the figures. The proof of each proposition requires a "construction" of some kind to be made, such as the producing of lines or the superposition of figures, and this construction is simply a reference to the unity of the system of space, in which the particular figure is an element (or combination of elements) related to others, and by which all the kinds of figures are ultimately determined. For instance, if you produce two sides of a triangle in order to prove something about its angles, you implicitly recognise that the triangle is not a self-complete system, the properties of which may be directly deduced from its definition, but that it is an element in a surface and that its internal properties are logically dependent on its external relations, or, at least, are in the most intimate connexion with them. Thus the synthetic method in geometry presupposes the system of space in its definitions and postulates, without showing how the figures described in the definitions or the right to demand these postulates follow from the nature of space itself. Now the mathematical form of Spinoza's *Ethics* is modelled upon that of Euclid's Geometry. There are numerous definitions of more or less independent things or ideas. Certain axioms are also assumed as self-evident, and from a combination of the axioms with the definitions the whole philosophy is regarded as necessarily following. The definitions are the substantial part of the

[1] Spinoza's demonstrations have, for the most part, the character of *reductio ad absurdum*. Leibniz writes of them: Ce Spinosa est plein de rêveries bien embarassées et ses prétendues démonstrations de Deo n'en ont pas seulement le semblant" (Gerhardt, ii., 133).

philosophy: the whole truth is an unfolding of what is implied in them. But the definitions of geometry are determined by space-experience; they are definitions of objects from which all characteristics except those of space have been thought away. And it is impossible to go a step beyond the definitions of geometry, to deduce anything from them, without a reference to the space which is their medium. Thus, as Tschirnhausen pointed out to Spinoza,[1] from the definition of a circle taken by itself it is impossible to deduce any of the properties of the circle except the uniformity of curvature by which it is distinguished essentially from all other curves. All the other properties of the circle can be deduced only through its being brought into relation with other things, such as radii, intersecting lines, etc. If, then, Spinoza's definitions correspond to the definitions of geometry, *i.e.*, if his method is a geometrical one, the definitions presuppose a system in which the things defined are elements, and apart from a reference to this system there can be no legitimate demonstration.

Now while it is legitimate for a special science, which does not propose to answer ultimate questions, to make postulates presupposing a system within which the objects of the science are inter-related, such a procedure is inconsistent with the purpose of an absolute philosophy. In order to expound the meaning of the universe *ordine geometrico* you must begin with a definition of the universe, just as in order to expound the meaning of a geometrical figure, you must begin with a definition of the figure. But while there are other geometrical figures by the aid of which the meaning of the figure defined may be further expounded, there is no other through which the meaning of the universe may be set forth. Either the definition must already include and express the whole of the properties of the thing defined, in which case it must say everything that is to be said, or it must express some property from which nothing further can be deduced except by the aid of other considerations, in which case it is inadequate as a definition. Spinoza, however, contends that while it is perhaps true in the case of very simple things or *entia rationis* (including geometrical figures) that the definition of the thing, apart from its relation to other things, yields only one property, this is untrue as regards real things. "For from this alone, that I define God as a Being to whose essence belongs existence, I infer several of His properties; namely, that He necessarily exists, that He is one, immutable,

[1] Ep. 82, Van Vloten and Land (71 in Bruder).

infinite," etc.[1] But the very terms of this definition imply a reference to other things. A Being whose essence involves existence is intelligible only in relation to a being whose essence does not involve existence; that which is *in se* can be thought only in relation to that which is *in alio*. And it is in virtue of this reference that the other properties of the object are deduced from the definition. Each of the properties is negatively proved by the use of such disjunctive axioms as: *Omnia quae sunt vel in se vel in alio sunt*,[2] and consequently the properties do not follow from the definition alone, but from the definition *plus* the interpretation of the terms of the definition, which is given in the axiom. That which is *in se* is that which is not *in alio*. If we go on afterwards (as seems to be the way of Spinoza) to deny the reality of that which is *in alio*, we stultify the whole procedure. To deny the reality of that which is *in alio* while we continue to assert the reality of that which is *in se*, is to alter the meaning of the axiom, to make it a disjunction, not between two kinds of things, but between the universe and nonentity. In other words, the axiom becomes tautologous: that which is *in se* is *in se*, the universe is the universe. Accordingly if the axiom has any meaning, Spinoza's definition of God implies that God is an element in a wider system, that He is *in se* in contrast with that which is really *in alio*. And yet Spinoza means by "God" the universe as one.

This is confirmed by an examination of Spinoza's own account of Definition in the *Tractatus de Intellectus Emendatione*,[3] where he gives rules for the definition of a created (*in alio*) and of an uncreated (*in se*) thing. The rules for the definition of a created thing are (1) that the definition must include the proximate cause, and (2) that the definition should be such that all the properties of the thing can be deduced from the definition, considered by itself and not in conjunction with others. This is evidently equivalent to saying that in order to know truly a created thing, we must see clearly both how it is produced and what it produces (for, according to Spinoza, the relation of cause and effect is reducible to that of substance and attribute). The thing defined must, in short, be removed out of the realm of the empirical or casual and regarded in its fixed and eternal relations. It must be perfectly conditioned, put in its own place in the ordered system of things. Again, for the defini-

[1] Ep. 83, Van Vloten (72 in Bruder).

[2] *Ethics*, i., Axiom 1; *cf.* Axiom 2: *Id quod per aliud non potest concipi, per se concipi debet.*

[3] Van Vloten, i., 29 *sqq.*; Bruder, ii., 36 *sqq.*

tion of an uncreated thing the rules are (1) that it should exclude all cause, *i.e.*, that the object should need for its explanation no other thing besides its own being; (2) given the definition there should remain no room for doubt whether the thing exists or not; (3) it should contain no substantives which can be used as adjectives, *i.e.*, the object defined should not be explained by abstractions and (4) we should be able to deduce all the properties of the thing from its definition. Now these rules are practically the same as those for the definition of a created thing. The first and second rules amount to saying that the proximate cause of the uncreated thing must be the thing itself, that it must be produced by no other thing. The fourth rule requires, as in the case of the created thing, that the idea be tested by its consequences, in other words, that the thing is real through its necessary relation to the whole system of things. The third rule is a caution against abstractions, which is equally applicable to the definition of a created thing, but is especially in point here, because in the definition of an uncreated thing proximate cause becomes *causa sui*. If it had been possible, as in the case of the created thing, to refer the uncreated thing to something else necessarily presupposed in it, there would have been less danger of abstraction. As it is, it seems to me impossible to escape abstraction in the definition of an uncreated thing. The definition of a thing can only mean a statement of the relations of that thing within some system of which it is a member or element, and this is virtually acknowledged by Spinoza in his rules for the definition of a created thing. But if this is so, every definition must be adjectival, must be made up of abstractions. In other words, it is impossible to give a true definition of an uncreated thing, if by an uncreated thing is meant the universe, the system of reality itself, which is the presupposition of all definition. Yet Spinoza bases his philosophy upon the definition of an uncreated thing and believes that he has deduced all from this definition.

Spinoza's imperfect recognition of the system which is presupposed in all demonstration appears to me to be due (in great part at least) to the way in which mathematical problems were regarded by him as by most of his contemporaries. The ancient geometers found that there were many problems which could not be solved directly by the aid of Euclid's definitions and postulates. In plane geometry Euclid postulated the straight line and the circle. But many problems (such as that of the area of a circle or the relation of its radius to its circumference) depend for their exact

solution upon the discovery of a relation between the straight line and the circle. Somehow it must be possible to express the circle in terms of the straight line. But you cannot do it with a ruler and a pair of compasses: you cannot draw or construct any figure which will solve the problem. The nearest approach to a solution that can be made is to construct a polygon with so many sides that it will come very near indeed to the circle. But you can never make the sides small enough for the figure to coincide with the circle. The sides will always remain finite straight lines, while the circle is the locus of a point which is continuously changing its direction. Accordingly the Greek geometers had recourse to the method of "exhaustions". Thus they regarded the area of a circle as being equivalent to the "limit" area of a circumscribed and an inscribed polygon, having the same number of sides, when the sides are made infinitely numerous. The polygons can never actually *become* the circle, but the ultimate difference is negligible, being as little as we like to make it, and accordingly the "limit" area to which each polygon approaches may be taken as practically equivalent to the area of the circle. Now this method is one of proof *per impossibile* or *reductio ad absurdum*. The area of the circle must be either equal to, greater than, or less than the limit area of the polygons. But to suppose it greater or less would be to suppose that the polygons do not yet coincide, *i.e.*, that the area is not the limit area. Therefore the area of the circle must be equal to the limit area of the polygons. But all proof *per impossibile* is merely a negative verification. It shows that anything other than the suggested law or truth (the thing to be proved) would be inconsistent with the general principles or constitution of some system, such as the system of quantity or the system of space. But it does not show how these general principles apply to the particular case or how the particular case follows necessarily from them, is an organic element in the constitution of the system. Thus, in the instance we have considered, the proof depends upon an actual construction or picturing in space of two dimensions *plus* a general reference to the nature of quantity as being such that every element in it must be either greater than, equal to, or less than any other. Space is assumed to be quantitative, and space of two dimensions is assumed to be such that straight lines and circles can be drawn in it; but neither the relation of space to quantity nor the nature of space of two dimensions as expressing itself in the straight line and circle is thought out or made an explicit premiss in the argument.

The reasoning is grounded on a more or less blind appeal to a system or systems that are presupposed without being thoroughly thought out.

A considerable advance upon the ancient methods was made by Kepler, who introduced the notion of infinity in connexion with the solution of geometrical problems, and by Descartes, who invented the analytical geometry or geometry of co-ordinates.[1] The introduction of the idea that a finite figure or a finite area is reducible to an infinite number of elements was an explicit recognition of the inadequacy of the Enclidean postulates as principles of demonstration, and it was the beginning of a train of thought which led inevitably to the Infinitesimal Calculus; but, as Pascal pointed out in defending Cavalieri, the geometrical method which proceeds upon the principle that the infinitely little may be neglected differs only in manner of expression from the method of exhaustions used in the Greek Mathematics.[2] Both are ultimately based on *reductio ad absurdum.* On the other hand, the general effect of the changes introduced by Descartes was (1) to make the relation between the system of space and that of quantity in general more clear and definite, by finding (in the co-ordinates) units of space-relation, and (2) to substitute for the empirical reference to space that is implied in the use of a ruler and compasses a method by which figures and their properties may be shown by calculation (without drawing or construction) to follow from the nature of space as extension in three or in two dimensions. The Cartesian method in geometry is thus more positive, direct and explicit than the method of the Greeks. Eliminating the postulates of Euclid, or rather going beneath them to the grounds on which they rest and thinking out what they imply, it gives a more perfect demonstration of the propositions of Euclid and solves more complex problems than the Greeks could have attempted. Nevertheless, while the Cartesian geometry was much more positive and thorough in its method of demonstration than was the synthetic geometry, it still retained the doctrine or hypothesis of limits in a negative form. It was (considering plane geometry alone) on the right lines towards a positive solution

[1] For a full history *v.* Gerhardt, *Die Entdeckung der höhern Analysis*, p. 6 *sqq.*, and Cohen, *Das Princip der Infinitesimal-Methode*, § 35 *sqq.*

[2] So Leibniz says in a letter to Varignon that the infinitesimal calculus "donne directement et visiblement, et d'une manière propre à marquer la source de l'invention, ce que les anciens, comme Archimède, donnoient par circuit dans leur reductions ad absurdum" (Gerhardt, *Math. Schriften*, iv., 92).

of the problem of the relation between a straight line and a curve,—a problem insoluble by Euclid because he postulated them independently; but the solution had still to be worked out, the unity of which the straight line and curve are immediate differences had still to be determined. The solution was obtained in connexion with the problem of drawing a tangent to a curve. If the method of limits is followed, the tangent is the limit of a secant cutting the curve in two points, when these two points are brought infinitely near to one another, *i.e.*, when they are separated from one another by less than any assignable distance. But even in the limit case we have still two points and a line,—an infinitely little line, it is true, but yet a line. The infinitely little distance is regarded as real but as negligible. Now just about the time of Leibniz another step forward was taken.[1] In connexion with the fact that finite numbers may be resolved into infinite series, it was contended that the finite line rests upon the infinitely little, that the infinitely little is really its generating principle. Every line has length and direction. An infinitely little line has infinitely little length; but no reduction in its length can make any alteration in its direction. Accordingly the infinitely little line means really the direction, which is the essence or generating principle of the line. Given the direction, the line may be drawn to any length, great or small. The essence of every line is thus its direction, that is its quality or characteristic and not its quantity as the distance between two points. The points presuppose the line. Thus, if we regard a curve as generated by the motion of a point, the tangent to the curve at any point will simply be the direction of motion at that point. The direction of the moving point changes continuously and, in the case of a regular curve, uniformly, in accordance with a law which is characteristic of the particular curve. Accordingly, in general, the straight line and the curve are essentially varieties of direction in space, the straight line being a continuous uniform direction, while the curve is a continuously varying direction of more or less complexity. And the direction of a curve at any point must be regarded as a ratio between two infinitely small quantities, because change of direction in a plane is relative to two axes and continuous change of direction means infinitely small variation from point to point. It was the solution of problems resulting from such conceptions as these that led to the discovery of the Infinitesimal Calculus.

[1] The advance was made by Roberval (1602-1675).

By this view that the infinitely little is the basis of the finite the older doctrine of limits is transcended. According to this negative doctrine of limits, an infinitely little difference between two figures (say) is negligible. But if an infinitely little difference is negligible, it must be for some reason. Infinite littleness is a matter of degree. An infinitely small quantity is a quantity less than any that can be assigned. But such a conception has no meaning unless we are speaking of an infinitely small *thing* or unity of differences, at the very least an infinitely small element in a numerical series which is not a bare addition or subtraction of homogeneous units but has some characteristic law of increment or decrement. It is the law or principle of the series, the nature or character of the whole, which enables us to say that the infinitely little difference may be neglected. Thus, adopting a phrase from Grandi, Leibniz writes to him in 1713: "*Infinite parva concipimus non ut nihila simpliciter et absolute, sed ut nihila respectiva (ut ipse bene notas), id est ut evanescentia quidem in nihilum, retinentia tamen characterem ejus quod evanescit*".[1] Accordingly, when it can be shown that two things ultimately "run into" one another or are continuous with one another, that is to say that the ultimate difference between them is infinitely little, it is presupposed that they are differences of a unity or that their difference is one of degree and not of kind. Thus the negative doctrine of limits implicitly presupposes a system within which its various objects are related, while the positive method, of which the fullest expression is to be found in the Calculus, explicitly recognises this system and regards the various objects or elements as necessarily determined by it. The method of limits was a true method so far as it went; but it was inadequate because it did not think out its presuppositions. The advance that was made by Leibniz and his contemporaries consisted in investigating these presuppositions by inquiries (direct and indirect) into the true meaning of mathematical infinity.

We are now in a position to consider the agreement and the difference between the scientific standpoint of Spinoza and that of Leibniz. The mathematics of Spinoza are the mathematics of Descartes. Spinoza is at the negative point of view implied in the method of limits, while Leibniz is at the positive point of view implied by the method of infinitesimals. In mathematics the method of limits is logically dependent upon the method of infinitesimals; it assumes, without

[1] Gerhardt, Leibniz's *Math. Schriften*, iv., 218. So also the conception of "infinities of infinity" is a favourite one with Leibniz, who frequently argues against the possibility of an absolute quantitative infinite.

justification or explanation, what the method of infinitesimals justifies and explains. The method of limits presupposes that the discrete is ultimately reducible to the continuous, the finite to the infinite; but it does not show, as the method of infinitesimals does, how the continuous develops the discrete, how the infinite constitutes the finite. Similarly in the metaphysics of Spinoza the unity of an all-comprehensive system is presupposed throughout; but the varieties of individual existence are not shown as proceeding from this system, as its logical development. The finite presupposes the infinite, modes presuppose attributes, attributes presuppose substance; but the infinite is reached by thinking away the varieties of the finite, the attribute is that which is common to all the modes, *substantia in se* or *vere considerata* is *substantia depositis affectionibus*.[1] Thus for Spinoza "determination is negation," "the determinate denotes nothing positive, but only a privation of the existence of that nature which is conceived as determinate".[2] Geometrical figures as definite figures are unreal, because their definiteness is dependent on other figures: their reality is indeterminate extension. And in general, definite quantities of any kind, separate parts, are unreal: real quantity, "as it is in the understanding," "as it is in itself," is infinite, indivisible and single [*unica*].[3] The infinite is thus the basis of the finite, the continuous of the discrete; but the reality of the infinite and continuous is conceived in such a way as to imply the unreality, and therefore the negation, of the finite and discrete. Not merely is it maintained that the infinite and continuous are not products of the finite and discrete, but it is implied that the finite and discrete are not really (as finite and discrete) products of the infinite and continuous. Now it is interesting to find that, in thus emphasising the unity of "extended substance" and real "quantity," as against the variety of finite "bodies" and "quantities," Spinoza says that the attempt to show that "extended substance is composed of parts or bodies really distinct from one another" is as absurd "as if one were to attempt by the mere addition and aggregation of many circles to make up a square or a triangle or something else totally different in essence" or to make a line out of points.[4] But the mathe-

[1] *Eth.*, i., 5, demonst.; *cf. Eth.*, ii., 10, Schol. 2: Res singulares non possunt sine Deo esse nec concipi; et tamen Deus ad earum essentiam non pertinet.

[2] Ep. 36, Van Vloten (41 Bruder).

[3] *Ibid.*, 12, Van Vloten (29 Bruder).

[4] *Loc. cit.*

maticians of Spinoza's own day were showing that rectilineal figures are not "totally different in essence" from circles and that finite quantity is the product of an infinite series, having a definite law or characteristic. The various geometrical figures are, it is true, not products of one another nor products of discrete quantities of any kind; but they are products or expressions of the qualities or characteristics of extension. Infinite extension is not something totally different in essence from all finite figures, something to be obtained only by getting rid of all finite extension. To call it "infinite" is to insist on its qualities or relations as determining its quantities, to regard it as a system from which certain finite figures, in all their finitude, necessarily follow, or rather a system of which these finite figures are the expression. And in general "infinite" quantity, in so far as it is really anything, is a negative name for quality, and to say that the finite presupposes the infinite is to say that quantity presupposes quality. This is the truth involved in Spinoza's account of the Attributes of Substance as infinite *in their kind;*[1] but it is a truth which is inconsistent with Spinoza's other contention that Substance is *absolutely* infinite. To think of anything as infinitely great or as infinitely little is to recognise negatively that the conception under which we are thinking it is inadequate, that the thing (as conceived by us) and its other are elements or differences within a higher unity. A circle, the radius of which is infinite, is a circle which is not a circle, and when we speak of it we mean to indicate that the conception of a circle as an independent finite figure is inadequate and that the difference between a circle and a straight line is a difference determined by some higher unity, which (so far) we do not explain. In the same way, when we speak of infinite space we mean that the space of mathematics is, by itself, an inadequate conception and that the system of space must itself be an element in some more comprehensive system. And in general, to say that a thing is infinite in its kind is to say that its kind is relative to some other kind and that neither is to be fully understood except through that of which they are both differences.[2] In other words, a thing which is infinite in its kind is a thing which is to some extent indeterminate. A thing absolutely infinite will consequently be a thing absolutely indeterminate. That is to say, a thing

[1] *Eth.*, i., Def. 6; *cf.* Ep. ii. and *Korte Verhandeling*, appendix, prop. iii.

[2] This, of course, means (what Spinoza would deny) that finite *Modes*, as well as Attributes, are each infinite in its kind. Thus, according to Leibniz, every finite thing "contains infinity," *v. infra.*

absolutely infinite must be a thing of which we have no conception whatever, for if we had an inadequate conception of it, it would be *infinite in its kind*, and if we had a perfectly adequate conception of it, it would no longer be infinite in the sense of indeterminate, it would be absolutely determined. In short, the mathematical infinite is always the indeterminate, while the infinite as applied to the real universe is the self-determined.

Now the characteristic feature of the philosophy of Leibniz is that, however imperfectly, it endeavours to give a positive solution of the problem of reality. And this is closely connected with Leibniz's point of view in Mathematics. Instead of regarding the infinite as the negation of the finite, to be reached by thinking away the finite, he conceives the infinite as the reality of the finite, to be reached by thinking out the finite. Every finite thing, according to Leibniz, "contains infinity": it is in some way constituted by the infinite, made up of infinitesimals. His account of the way in which the infinite actually constitutes or determines the finite is far from being perfectly satisfactory; but he has a sure grasp of the principle that the determining infinite means quality, characteristic, relation of some kind, and that it is impossible to get behind relations, behind the world as a system, or, in other words, to reach substance *depositis affectionibus*. Thus in the letter to Grandi already quoted (p. 342) Leibniz writes: *Infinitudo vera non cadit nisi in infinitum virtutis omni parte carens . . . et quantitates illæ calculi nostri extraordinariæ sunt fictiones, non ideo tamen spernendæ sunt. . . cum in calculo perinde sit ac si essent veræ quantitates, habeantque fundamentum in re et veritatem quandam idealem ut radices imaginariæ.*[1] All quantity is accordingly quantity of something non-quantitative, quantity of some quality or characteristic. A finite straight line is a quantity of uniform direction, a finite curve is a quantity of direction which varies according to some law, a finite extension is a quantity of something extended. "Extension presupposes some quality, some attribute, some nature in the extended thing, which quality extends or diffuses itself along with the thing, continues itself."[2] This quality is conceived by Leibniz as potentiality, not in the sense of empty capacity (*puissance nue*), but in the sense of something which contains implicitly within itself its own

[1] Gerhardt, Leibniz's *Math. Schriften*, iv., 218; *cf.* iii., 500: *Reale infinitum fortasse est ipsum absolutum, quod non ex partibus conflatur, sed partes habentia eminenti ratione et velut gradu perfectionis comprehendit.*

[2] Leibniz. Erdmann's ed., 692 b; Gerhardt's ed., vi., 584.

realisation (entelechy or *tendance*). The infinite develops into the finite, the qualitative into the quantitative. The infinitely little line is a direction, but in the direction there is contained implicitly every finite line having that direction: in other words, the line is a development of the direction. But, as we have seen, all such development is the development of a unity, or rather of a system, into its differences; it is something permanent unfolding itself in its changes. Now this implies that reality is not a bare unity, from which the differences have been thought away, but a system of differences, a unity which implicitly contains its differences within itself. This is the principle of the law of Continuity, which governs Leibniz's mathematics[1] and which has a considerable function in his philosophy. According to the law of Continuity, a thing may (as Leibniz himself puts it) be regarded as "equivalent to a species of its opposite,"[2] *e.g.*, rest may be regarded as a species of motion (an infinitely little motion), equality as a species of inequality, unconsciousness as a species of consciousness, the finite as a species of the infinite. By this, of course, is meant not that the thing is a species of which its opposite is genus, but that the relation between them is reciprocal, it being possible to regard each as a species of the other. But this implies that both are elements within some unity or system which is inseparable from them. And it is this that leads Leibniz to insist so strongly on the explicit recognition of the principle of sufficient reason as a principle of method. The principle of sufficient reason is the principle that everything has a ground or reason which is at once identical with it and different from it, in other words that nothing is self-evident, purely self-identical. Thus the principle of sufficient reason is the principle that the ultimate reality is not a unity from which the differences have been thought away, but a system of elements in relation, a unity in difference. And of this principle the law of Continuity is manifestly a particular application, for it amounts to saying that, while all the varieties of things are real, no one of them is independent of the rest, the world is a system of "compossible" things.

[1] Leibniz very frequently speaks of the law of Continuity as derived from the consideration of "the infinite" and as being the basis of the Calculus. For instance, in the *Specimen Dynamicum* (1687) he speaks of it as *principium ordinis generale, nascens ex infiniti et continui notione, accedente ad illud axioma, quod datis ordinatis etiam quæsita sunt ordinata* (Gerhardt, *Math. Schriften*, vi., 250; *cf.* Cohen, *Princip der Infinitesimal-Methode*, § 52 *sqq.*).

[2] *Math. Schriften*, iv., 93.·· Leibniz says *contradictoire*, but the context shows that he means "contrary," opposite.

On the one hand, there is no absolute surd, no purely contingent thing: on the other hand the surd and the contingent are not absolutely "irrational" or illusory. The surd is reducible to an infinite series, the contingent is the product of an infinity of conditions, and thus each is a form of its other.[1]

Accordingly we may, I think, put the difference between Leibniz and Spinoza in this way, that Spinoza expressly proceeds upon a method of deduction from self-evident first principles, *i.e.*, from a basis of pure identity, while this procedure is possible only because a system of identity in difference is presupposed throughout; and Leibniz, on the other hand, explicitly recognises this system as *practically* ultimate, while at the same time he professes to give a shadowy ground for the system itself (a ground of its *existence* but not of its *essence*) in the "choice" of God, which is rather a negative release into existence than a positive creation. Thus Spinoza's presupposition of a system of unity in difference as constituting the ultimate reality of things appears in his constant references to the "order and connexion" of things and ideas, to the proximate cause as giving the essence of a thing and to substance as *causa sui*, *natura naturans* and *natura naturata* (*i.e*, substance as cause and effect, ground and consequent, yet both ultimately the same), to the *conatus*, effort or tendency in things, to the "series of fixed and eternal things" (universal singulars)[2] and to many similar conceptions.[3] And, on the other hand, Leibniz shows the imperfection of his grasp of the principle which he himself insists upon, by treating the law of sufficient reason as an addition to the law of identity and by speaking of the essences of all abstractly possible worlds as being in the understanding of God, a *regio idearum* behind the actual world. In short the inconsistencies of the two philosophies

[1] *Vide* Leibniz, Erdmann, 83 b; Gerhardt, vii., 200: "The difference between necessary and contingent truths is indeed the same as that between commensurable and incommensurable numbers. For the reduction of commensurable numbers to a common measure is analogous to the demonstration of necessary truths or their reduction to identical truths. But, as in the case of surd ratios the reduction involves an infinite process and yet approaches a common measure, so that a definite but unending series is obtained, thus also contingent truths require an infinite analysis, which God alone can accomplish" (*Cf.* Cohen, *Infinitesimal-Methode*, § 43).

[2] *Vide Tractatus de Intellectus Emendatione.*

[3] *E.g.*, Spinoza uses the very terms in which Leibniz states his principle of sufficient reason: *Cujuscunque rei assignari debet causa seu ratio, tam cur existit, quam cur non existit* (*Eth.*, i., 11, demonstr. 2).

are similar, but the emphasis is on opposite sides. A comparison between Spinoza's "Attributes" and the qualities which Leibniz attributes to his Monads may serve to illustrate this. Spinoza speaks of substance as *constans infinitis attributis*,[1] which means that substance must contain every possible kind of reality. Each of these attributes "expresses eternal and infinite essence," *i.e.*, each expresses the whole and in its own way expresses it completely. There is no degree in their expression of the whole (as, for example, there is degree in the perfection with which the Monads express the whole). And an attribute is defined as *id quod intellectus de substantia percipit tanquam ejusdem essentiam constituens*.[2] The human understanding, because of its finitude, perceives only two of these attributes, and we are thus left to infer that an infinite understanding must perceive the infinite attributes. But the infinite attributes do not limit one another. One idea limits another and one body limits another; but thought does not limit extension nor extension thought. Accordingly the infinite attributes must mean simply the totality of abstract possibilities for an infinite intellect. That is to say, they are very much the same as Leibniz's infinity of "possible" ideas or essences in the understanding of God. Ultimately, then, there is no connexion between the attributes. They do not form part of one system; otherwise they would limit one another. In Leibniz's language they would not merely be "possible" but "compossible". Yet they are held to be parallel expressions of substance, and this parallelism seems to imply that they do belong to the same system, that they are differences within its unity. On the other hand, when Leibniz attributes to every substance two fundamental qualities, "perception" and "appetition," he is defining substance as system within system. Perception is simply a name for the relation of one term or element to every other element in the system, while appetition is a name for the development of the system from within itself. Ultimately it is implied in Leibniz's view that appetition means simply change of perception, variety of relationship. But the perception and appetition are attributed by Leibniz, not to one substance or to one ultimate system of things, but to each of an infinite number of substances, which are indeed regarded as related to one another, but which are so externally related, so independent in their own being, that each lives its own life as if there existed nothing but God and itself. Thus the notion of system is

[1] *Eth.*, i., 11, and def. 6. [2] *Ibid.*, i., def. 4.

explicitly recognised by Leibniz, without being thoroughly thought out. His "system" is not all-inclusive. The world is not the one system of reality, but "the best of all possible worlds". The elements of which it is composed are essentially "possibles," in their own nature completely independent. Thus the world is the system of the "compossible," resting on the chaos of the "possible".

The results of this general argument cannot be worked out within the limits of this paper, but I may take up one or two special points. (1) In the first place, as most closely connected with the general line of thought we have been following, let us consider the views of Descartes, Spinoza and Leibniz regarding extension and motion. According to Descartes, extension and motion are absolutely *given*. Extension is a created substance, in the sense that its existence presupposes nothing else except the *concours ordinaire* of God. Motion is also a direct creation of "God Himself, who in the beginning created matter along with motion and rest and now, by His *concours ordinaire* alone, preserves in the whole the same amount of motion and rest that He then placed in it".[1] From the combination of these two absolutely given elements—given in separation from one another—Descartes in his *Principia*, part iii., tries to show that the whole material world in its endless variety comes into being. Ultimately, then, all matter is space of three dimensions *plus* motion. Spinoza, excluding the idea of creation, reduces the independence of extension, treating it not as substance but as an attribute of substance, *i.e.*, as something which on the one hand is not relative to anything else except understanding, while on the other hand, being relative to understanding, it is not substance itself. This attribute of extension, however, is not what we call space of three dimensions, for it is one and indivisible.[2] In short, extension, for Spinoza, is that which is presupposed in extended things, that which remains when all the limits (the finitude) of extended things are thought away. And thus, of course, Spinoza rejects the view of Descartes that the essence of matter or corporeal substance can be an extension that is divisible. Divisible extension is extension conceived "abstractly or superficially, as by means of the senses we have it in the imagination".[3]

[1] *Principia*, ii., 36.

[2] Extended substance, according to Spinoza, can have no parts; for if it had parts, each of them would be a substance and would be finite, which is a contradiction of the nature of substance as that which is infinite inasmuch as the conception of it requires the conception of nothing else; *cf.* Ep. 12, Van Vloten (29 Bruder).

[3] *Loc. cit.*

Again motion, according to Spinoza, is an infinite mode, that is to say, it is an immediate modification of the attribute of extension, "following from the absolute nature of that attribute".[1] But he makes no attempt to show how motion "follows from the absolute nature" of extension. All that he can really mean is that motion presupposes extension. Motion is the stepping-stone between finite bodies and the infinite attribute. The differences of finite bodies all presuppose (or are reducible to terms of) the motion of particles, this motion of particles as a totality presupposes (when we think away the finite element in it, the parts or particles) an infinite motion, which similarly presupposes extension, which in turn presupposes substance. Each stage is obtained from that which preceded it by the removing of certain determinations, until we reach the "absolutely indeterminate".[2] Now the characteristic feature both of Descartes's and of Spinoza's view is the negative form in which the relation between extension and motion is regarded. According to Descartes, motion comes to extension entirely *ab extra:* according to Spinoza, motion, being a mode, presupposes extension, but extension, being an attribute, must be conceived through itself alone and is therefore independent of motion. Hence, when Descartes takes it as the fundamental principle of his laws of motion that the quantity of motion and rest in the universe (or in any isolated system of bodies) is fixed and unchangeable, he leaves out of account the direction of motion, because that is a quality not of motion *per se* but of motion in space. Further it is interesting in this connexion to recall the fact that Leibniz on his journey to Holland to visit Spinoza wrote a paper on the principle of motion, and that one of the few things he tells us about his interviews with Spinoza is that "Spinoza did not quite clearly see the defects of Descartes's laws of motion: he was surprised when I began to show him that they were inconsistent with the equality of cause and effect".[3] Now Leibniz's objection to Descartes's laws of motion is that they are too abstract. Motion, of course, mathematically considered, must be an abstraction; but motion regarded as something given quite independently of extension is motion considered more abstractly than is necessary. In fact motion and extension mutually presuppose one another: they are both abstractions from one reality. This might be illustrated by the fact that

[1] *Eth.*, i., 21; *cf.* Ep. 64, Van Vloten (66 Bruder).

[2] Ep. 36, Van Vloten (41 Bruder).

[3] Foucher de Careil, *Réfutation inédite de Spinoza*, p. lxiv.

(as we have already seen) the figures or determinations of extension are reducible to directions of motion (leaving out of account mass, or moving body, and velocity). All real motion, then, has direction; it is given, not independently, but in relation to extension. And consequently the motion whose quantity in the universe is fixed must be motion having direction: the direction is conserved as well as the quantity of abstract motion. But the direction of a motion is not something actual in the sense that it can be seen or pictured as a whole. It is a quality, a potentiality or partly hidden tendency in the motion, an infinitesimal, out of which the finite motion develops. This potentiality or tendency, which is presupposed by all actual motion when we take into consideration its direction, is what Leibniz means by Force. And thus for Leibniz Force, as qualitative, as a potency passing into actuality, an identity in difference, is the substance or reality from which actual visible or picturable motion and extension are abstractions.[1] An infinitely little line is a direction of motion and an infinitely little motion (or direction of motion) is a force. Thus the positive interpretation of the infinitely little means a passing from superficial ideas of sense and imagination to deeper and more comprehensive notions of thought, from the abstract to the concrete. But the attitude of sense or imagination is not absolutely cut off from the attitude of thought or understanding. Comprehension by the understanding is a thinking out of what appears imperfectly in sense.

(2) This leads naturally to a brief consideration of the difference between Spinoza's theory of knowledge and that of Leibniz. Spinoza draws a sharp line between *opinio* or *imaginatio*, on the one hand, and *ratio* and *scientia intuitiva*, on the other. *Opinio* or *imaginatio* is the cause of falsity, while the knowledge given by *ratio* and *scientia intuitiva* is necessarily true.[2] Thus in the *Tractatus de Intellectus Emendatione* we find Spinoza insisting mainly on the distinction

[1] Thus Spinoza and Leibniz are both opposed to Descartes's theory that extension is the essence of corporeal substance, on the ground that divisible extension presupposes something *omni parte carens*. But this indivisible basis of extension is conceived by Spinoza negatively, as being entirely without parts in any sense, as being *one* in opposition to *many*, while Leibniz conceives it positively, as something which has degrees or varieties and thus as one *in* many. The difference is so considerable and so closely connected with Leibniz's mathematics that I think it ought to weigh heavily against the suggestion of Stein (p. 64 *sqq.*) that Leibniz was probably influenced by Spinoza in his criticism of Descartes's view of "extended substance".

[2] *Eth.*, ii., 40, 41.

between the empirical order of events, which is the work of imagination, and the real order of existence, as it is known by reason. Mere perception or the history of events which has no higher principle of order than memory, mere sequence in short, is dismissed absolutely as illusion. But, on the other hand, *veritas norma sui et falsi est.*[1] Falsity presupposes truth, imagination presupposes understanding. But there is no positive relation between them. Without understanding and truth there can be no imagination and falsity; but without imagination and falsity there might be understanding and truth. Leibniz, on the other hand, makes the difference between sense or imagination and understanding one of degree. The difference between them is ultimately an infinitely little one, or rather they are elements in a continuous series of perceptions, differing from one another by infinitely little degrees of clearness and distinctness. And, just as every finite number may be resolved into an infinite series, so every finite perception is made up of an infinity of *petites perceptions*, which are relatively obscure and confused. Every perception thus "contains" or "involves infinity," and the notion of perception is stretched out so as to include every kind of relation, whether conscious or unconscious. Accordingly the relation between sense (or imagination) and understanding comes to be reciprocal. Each presupposes the other. Understanding is the evolution of sense, while sense is the involution of understanding. To this extent the positive view of Leibniz transcends the negative position of Spinoza. But Leibniz does not see clearly all that is involved in his method. For instance, the infinity of *petites perceptions* into which Leibniz resolves a particular sense-perception is an infinity of elements, each of which is and is not a sense-perception, each of which belongs in some way to sense but does not belong to sense-*consciousness.* Now (as we saw when dealing with the relation between the finite and the infinite) this means that the distinction between the conscious and the unconscious is not ultimate, that it is an expression of some deeper unity, that the conscious and the unconscious are inseparable elements in a system. Consequently in the *petite perception* we ought to find that which determines the distinction between the conscious and the unconscious, *i.e.*, the comprehensive unity in difference, which expresses itself in them. Such a unity would be the unity or system of reason or of self-consciousness, which reveals itself in the distinction between conscious and unconscious, subject and

[1] *Eth.*, ii., 43, Schol.

object, and which thus transcends that distinction. But we shall look in vain for any such system in the *petites perceptions* of Leibniz. It is true that he regards them as *somehow* having order in them, as containing implicitly a law of *some* sort; but in reality he conceives them, not positively but negatively, as sensations *minus* consciousness, *i.e.*, as "limits" of conscious sensations, and thus any order they may be supposed to have is not an order of their own, but the order of conscious perception read into them. There must, for example, be among conscious perceptions an order or system which is expressed in the distinctions between (say) sensations of hearing and sensations of sight. A similar order must be supposed to exist among the *petites perceptions*. But this second order is presupposed in a purely negative way. If we have a conscious perception of the sound of 100,000 waves, we must *somehow* have perception (though unconscious) of the sound of each;[1] but Leibniz makes no attempt to indicate exactly *how*. His argument here is simply the *reductio ad absurdum*, which is the characteristic argument of Spinoza. And Leibniz's failure at this point accounts for the difficulty he finds in dealing with the rational or self-conscious soul. He sees clearly that the conscious in some way presupposes the unconscious; but he has not an equally clear grasp of what is involved in the truth that the unconscious presupposes the conscious. Hence it becomes increasingly difficult for him to carry out his law of continuity when he comes to consider the higher parts of the scale of being. He cannot, for instance, conceive that a self-conscious soul should ever lose its self-consciousness and permanently become merely conscious or unconscious. And thus he hesitates between the hypothesis that rational souls have been raised from the rank of sensuous souls "by the extraordinary operation of God" and the hypothesis that "only those souls which are destined some day to attain to human nature contain in germ [*enveloppent*] the reason which will some day appear in them".[2] On the whole matter Leibniz is very inconsistent and unsatisfactory; but, whichever of his hypotheses we follow, it is evident that he did not realise

[1] *Nouveaux Essais, Introduction* (Erdmann, 197; Gerhardt, v., 47). One might ask—why a separate *petite perception* for each *wave* and not for every possible *element* in each wave? The single wave is quite an arbitrary standard for the unit of perception: there is nothing to show why it should be chosen.

[2] *Théodicée*, § 397; *cf.* § 91, and *Lettres à Arnauld* (1686-7), Gerhardt, ii., 75 and 99; also *Lettre à des Maizeaux* (1711), Erdmann, 676; Gerhardt, vii., 534.

the true consequence of his own principles, *viz.*, that self-consciousness, as the more concrete principle, is necessarily implied or presupposed in the continuity of the conscious and the unconscious, that it is the system in which they are elements. Such a conclusion would, of course, have destroyed the monadology by making the universe a single all-comprehensive Monad. Accordingly Leibniz at this point falls back upon the method of Descartes and Spinoza, practically (though not avowedly) treating the self-conscious soul as discontinuous with the conscious and the unconscious, as having some new quality that is a sheer addition to the qualities of these lower souls.

(3) This beginning of a rift in continuity widens into an open self-contradiction when we come to Leibniz's account of God, the highest in the scale of being. The contradiction consists in regarding God as at once the highest Monad and the being in whose understanding the essences of all possible systems are and who by His choice makes the best possible system real. God is thus both within and without the system of monads. In so far as He is merely an element in the system, He is less than God: in so far as He is outside of the system, the continuity is broken. Leibniz's own suggestion regarding the proof of the existence of God would, if thought out, have revealed the contradiction. He says that the Cartesian ontological proof of the existence of God is incomplete. It ought, he says, to run: *if the most perfect Being is possible* (*i.e.*, if the idea of a most perfect Being is not self-contradictory), it follows that the most perfect Being exists. And he argues that, for instance, there is no swiftest possible motion, because the idea of it can be shown to be self-contradictory. But Leibniz failed to observe that, if the most perfect Being is regarded as one of a series, the idea of it is self-contradictory. For either it contains all the perfections (*i.e.* in Leibniz's sense, the positive reality) of the other members of the series or it does not. If it does, it is no longer to be regarded as *one* member of the series; if it does not, it is no longer most perfect, for *ex hypothesi* it lacks some perfections.[1] Leibniz misses the contradiction by arguing that the idea of a most perfect Being is not self-contradictory, for all perfections are mutually compatible. This argument, however, was made by him long before he had thought out his monadology, and he tells us that in one of the interviews at the Hague he submitted it to Spinoza

[1] That is to say, we should have a "best possible" God, corresponding to the best possible world.

who, though inclined at first to oppose it, ultimately admitted it to be satisfactory.[1] The fact is interesting when we consider that the contradiction in Leibniz's account of God is the exact counterpart of the contradiction in Spinoza's view of substance. Leibniz treats God as at once an element in the system of things and a Being independent of the system, but of such a nature that the system itself seems unnecessary; while Spinoza, as we have seen, regards God or Substance as equivalent to the Universe as one, and yet his definition of God implies that He is an element in some wider system. From opposite sides Spinoza and Leibniz fall into the same pit.

In this paper I have been able to do little more than indicate a line of thought which, it seems to me, may be fruitfully developed. It is easy, on the one hand, to show that Spinoza and Leibniz are both inconsistent and, on the other hand, to maintain that they both say exactly the same thing in slightly different ways. The armoury of the more recent philosophy equips us for the one task, and a collection of parallel passages might fortify us for the other. But neither of these things profits us a whit. Turning from them, I have endeavoured to show that what is admittedly implicit in the philosophy of Spinoza is made comparatively explicit in the philosophy of Leibniz, although Leibniz does not by any means thoroughly work out the consequences of his own method. And the philosophical attitude of each is, I think, very closely connected with their views of mathematics. The negative doctrine of limits, when it is thought out, issues in the positive doctrine of infinitesimals, which it presupposes. Thus Spinoza argues vigorously against the reality of final causes as involving the introduction of the negative, the finite, the determinate into substance, while in his constant references to the order and connexion of things[2] and to the *conatus* or self-preserving tendency in each individual thing, he presupposes that determinate system of inter-related elements which his explicit argument against final causes would exclude. Leibniz, on the other hand, is concerned for nothing more than for the reality of final cause. It is the point regarding which he most sharply differs from Spinoza and in his correspondence he returns to it again and again. Nevertheless in the end he puts behind his rational or

[1] Gerhardt, vii., 261.

[2] Compare these with the passage in the appendix to part i. of the *Ethics*, where Spinoza attributes the belief that there is order in things to imagination, as distinct from understanding.

"inclining" necessity, a necessity of blind fate, behind his "compossible" system a chaos of empty "possibilities," so that the real world is practically taken as a creation out of nothing, a development of that indeterminate capacity, that *puissance nue*, which Leibniz himself most frequently derides.

III.—CAN THERE BE A SUM OF PLEASURES?[1]

By Hastings Rashdall.

The doctrine that pleasures cannot be summed, that there is no meaning in the idea of a sum of pleasures and that consequently the "hedonistic calculus" is impossible and unintelligible, has long been maintained by a certain section of anti-utilitarian writers, among whom it will be enough to mention the late Prof. T. H. Green and Mr. Bradley. It must be confessed, however, that it is not very easy to extract from either of these writers the exact grounds or even the precise meaning of their contention. Prof. Mackenzie in his *Manual of Ethics* and his *Introduction to Social Philosophy* has performed a real service by putting the doctrine into a form in which it is more easy to subject it to examination and criticism. In the following pages, however, I shall not confine myself to what Prof. Mackenzie has advanced, as what appear to me the misconceptions which underlie his reasoning are widely diffused and seem often to be assumed in the language of writers who have been less explicit. My object is rather to get to the bottom of the misunderstanding than to criticise any particular writer; I do not therefore wish to be understood as holding Prof. Mackenzie responsible for every argument that I may criticise except where I expressly quote him.

It may be well at the outset to explain that I am not in the least interested in the defence either of the hedonistic Psychology or of hedonistic Utilitarianism, both of which I entirely reject on much the same grounds as those which would be assigned by the writers I am criticising—writers with some of whom I should largely agree in their general view of Ethics. This is particularly the case with regard to Prof. Mackenzie, who is entirely free from that sectarian prejudice against Casuistry and that dislike to the scientific treatment of practical problems which are characteristic of several writers by whom the incommensurability of pleasures has been maintained. It is unnecessary for my present

[1] Read before the Aristotelian Society.

purpose to indicate in any detail what in my own view is the place of a hedonistic calculus in Moral Philosophy. It is enough to say that I do not regard the promotion of the "greatest quantum of pleasure" as a true or adequate formulation of the moral criterion. I believe that many other things—most of all Goodness, and, in a lower degree, intellectual goods such as knowledge, contemplation of beauty, culture and the like—possess a value which is not dependent on the pleasure by which they are normally accompanied, and which very much exceeds the value of the pleasure considered simply as such. At the same time pleasure does appear to me to have intrinsic value. I maintain—with Plato, Aristotle, and in fact almost all ethical writers except the Stoics and their imitators of the Greenian School—that pleasure—or rather (since there are bad pleasures) *some* pleasure—is *a* good, though not *the* good. And this assertion seems to me to carry with it the implication that *ceteris paribus* the more pleasure the more good; *ceteris paribus* the greater amount of pleasure is to be preferred to the less. I regard it, therefore, as a part of duty, though by no means the whole, to promote as much pleasure as possible—excluding, of course, bad pleasures. The promotion of a "greatest quantum of pleasure" or of a "greatest amount of pleasure on the whole" does appear to me a possible object of human desire and human action; though this aim should be pursued in due subordination to the higher elements in of that εὐδαιμονία or total Well-being of Humanity which the good man will regard it as his duty to pursue. These are the propositions which I understand to be denied by the writers I have in mind. It will be well to start with a few specimens of these denials.

(1) The late Prof. Green wrote as follows: "A *Summum Bonum* consisting of a greatest possible sum of pleasure is supposed to be definite and intelligible, because every one knows what pleasure is. But in what sense does every one know it? If only in the sense that every one can imagine the renewal of some pleasure which he has enjoyed, it may be pointed out that pleasures, not being enjoyable in a sum —to say nothing of a greatest possible sum—cannot be imagined in a sum either. Though this remark, however, might be to the purpose against a Hedonist, who held that desire could only be excited by imagined pleasure, and yet that a greatest sum of pleasure was an object of desire, it is not to the purpose against those who merely look on the greatest sum of pleasures as the true criterion, without holding that desire is only excited by imagination of pleasure.

They will reply that, though we may not be able, strictly speaking, to imagine a sum of pleasures, every one knows what it is. Every one knows the difference between enjoying a longer succession of pleasures and a shorter one, a succession of more intense and a succession of less intense pleasures, a succession of pleasures less interrupted by pain and one more interrupted. In this sense every one knows the difference between enjoying a larger sum of pleasures and enjoying a smaller sum. He knows the difference also between a larger number of persons or sentient beings and a smaller one. He attaches therefore a definite meaning to the enjoyment of a greater net amount of pleasure by a greater number of beings, and has a definite criterion for distinguishing a better action from a worse, in the tendency of the one, as compared with the other, to produce a greater amount of pleasure to a greater number of persons.

"The ability, however, to compare a larger sum of pleasure with a smaller in the sense explained—as we might compare a longer time with a shorter—is quite a different thing from ability to conceive a greatest possible sum of pleasures, or to attach any meaning to that phrase. It seems, indeed, to be intrinsically as unmeaning as it would be to speak of a greatest possible quantity of time or space. The sum of pleasures plainly admits of indefinite increase, with the continued existence of sentient beings capable of pleasure. It is greater to-day than it was yesterday, and, unless it has suddenly come to pass that experiences of pain outnumber experiences of pleasure, it will be greater to-morrow than it is to-day; but it will never be complete while sentient beings exist. To say that ultimate good is a greatest possible sum of pleasures, strictly taken, is to say that it is an end which for ever recedes; which is not only unattainable but from the nature of the case can never be more nearly approached; and such an end clearly cannot serve the purpose of a criterion, by enabling us to distinguish actions which bring men nearer to it from those that do not. Are we then, since the notion of a greatest possible sum of pleasures is thus unavailable, to understand that in applying the Utilitarian criterion we merely approve one action in comparison with another, as tending to yield more pleasure to more beings capable of pleasure, without reference to a *Summum Bonum* or ideal of a perfect state of existence at all? But without such reference is there any meaning in approval or disapproval at all? It is intelligible that without such reference the larger sum of pleasures should be desired as against the less; on supposition of benevolent impulses, it is intelligible that

the larger sum should be desired by a man for others as well as for himself. But the desire is one thing, the approval of it—the judgment 'in a calm hour' that the desire of the action moved by it is reasonable—is quite another thing. Without some ideal—however indeterminate—of a best state of existence, with the attainment of which the approved motive or action may be deemed compatible, the approval of it would seem impossible. Utilitarians have therefore to consider whether they can employ a criterion of action, as they do employ it, without some idea of ultimate good; and, since a greatest possible sum of pleasures is a phrase to which no idea really corresponds, what is the idea which really actuates them in the employment of their criterion" (*Prolegomena to Ethics*, §§ 358, 359).

(2) So Prof. Mackenzie: "*Pleasures cannot be Summed.* It follows from this that there cannot be any *calculus* of pleasures—*i.e.*, that the values of pleasures cannot be quantitatively estimated. For there can be no quantitative estimate of things that are not homogeneous. But, indeed, even apart from this consideration, there seems to be a certain confusion in the Hedonistic idea that we ought to aim at a greatest sum of pleasures. If pleasure is the one thing that is desirable, it is clear that a sum of pleasures cannot be desirable; for a sum of pleasures is not pleasure. We are apt to think that a sum of pleasures is pleasure, just as a sum of numbers is a number. But this is evidently not the case. A sum of pleasures is not pleasure, any more than a sum of men is a man. For pleasures, like men, cannot be added to one another. Consequently, if pleasure is the only thing that is desirable, a sum of pleasures cannot possibly be desirable. If the Hedonistic view were to be adopted, we ought always to desire the greatest pleasure—*i.e.* we ought to aim at producing the most intense feeling of pleasure that it is possible to reach in some one's consciousness. This would be the highest aim. A sum of smaller pleasures in a number of different people's consciousnesses, could not be preferable to this; because a sum of pleasures is not pleasure at all. The reason why this does not appear to be the case, is that we habitually think of the desirable thing for man not as a feeling of pleasure but as a continuous state of happiness. But a continuous state of happiness is not a mere feeling of pleasure. It has a certain objective content. Now if we regard this content as the desirable thing, we do not regard the feeling of pleasure as the one thing that is desirable; *i.e.* we abandon Hedonism" (*Manual of Ethics*,[1] pp. 112-113).

[1] *Cf.* Prof. Mackenzie's *Social Philosophy*, pp. 222-227.

For purposes of criticism it will be convenient to break up the positions of my opponents into three assertions, all of which are made by Prof. Mackenzie but of which the last might possibly be maintained without the second, or the last two without the first. I begin, that is to say, with the more extreme position and then go on to the more moderate forms of the doctrine which I am criticising. I may say at once that it is the first two which I am chiefly concerned to deny: the third seems to me to raise a more subtle and debatable question, and (while I am prepared to defend my thesis on this point) I attach little importance to it, and would particularly insist that failure to establish my position thereon should not be held in any way to invalidate my argument in relation to the other two. The three positions which I dispute are these:—

(1) That a sum of pleasures is not a possible object of desire.

(2) That while the proposition *this pleasure is greater or more pleasant than that* has a meaning, the judgment is not quantitative.

(3) That even if one pleasure or sum of pleasures can be said to be greater in amount than another, numerical values cannot, with any meaning, be assigned to two pleasures or sums of pleasure: so that there can never be any meaning in the assertion "this pleasure is twice as great as that".

I may add that for the present I am dealing with the comparison of pleasures of the same kind or quality. Afterwards I shall have something to say as to the comparison of pleasures which "differ in kind". Meanwhile, the fact that I am confining myself to pleasures of the same kind may perhaps be my excuse if I take my illustrations for the most part from pleasures of a low type, such as those of eating and drinking. I do so simply because what I contend for is most clearly seen in the case of such pleasures. I make this remark to deprecate the wrath of critics who, while apparently not averse to a good dinner, seem to wish it to be understood that the pleasantness of the meal is to them a contemptible—not to say a regrettable—accident involved in the pursuit of some higher end, the nature of which they never seem able to indicate with any precision. I need hardly say that I have no desire to emphasise the importance of the element contributed to happiness by those pleasures of eating and drinking to which the actual usages of the most refined societies give so unfortunate and indefensible a prominence.

I. Firstly then it is asserted that a sum of pleasures is not a possible object of desire.

This position would appear to be maintained upon one of two possible grounds:—

(*a*) It may be regarded as a corollary of the still more paradoxical doctrine that we never desire pleasure at all. This may mean that we never desire *a* pleasure, or that we never desire pleasure in general but always a particular pleasure. Prof. Mackenzie would seem to deny the possibility of desiring either *a* pleasure or pleasure in general.

What lies at the bottom of these assertions seems to be the undeniable fact that it is impossible to *enjoy* pleasure in general or a pleasure taken apart from everything else. What we enjoy is always a particular content—a pleasant sound, a pleasant sensation, a pleasant activity, a pleasant idea. A man whose consciousness was at any single minute full of nothing but pleasure would be an impossible variety of lunatic: for he would have to admit that he was pleased at just nothing at all. Pleasure apart from the pleasant something is of course a pure abstraction. When a man is said to desire pleasure, it is meant undoubtedly that he desires pleasant things, and further that he desires them simply because they are pleasant. Is not this a possible state of mind? It would seem that there are those who would be prepared to deny even this—who would say that even a particular pleasure, *i.e.* (of course), a particular pleasant content is not a possible object of desire. Such a doctrine claims the high authority of the present Master of Balliol:—

"Further, *when* the desire of pleasure thus arises, it is in us combined with a consciousness for which pleasure cannot be the sole or the ultimate end, a consciousness of which, as universal, pleasure is not an adequate end. This may be shown in various ways, the most obvious of which is to point out that pleasure must be had in some object for which there is a desire independently of the pleasure it brings" (*The Critical Philosophy of Kant*, ii., p. 229).

Now I should fully admit that many—probably most—of our desires are not desires for pleasure but "disinterested desires" or "desires for objects," and that in all such cases the satisfaction of the desire gives pleasure because the object has been desired; it is not desired, or at all events it is not desired solely, because it is calculated that the attainment of the given object will bring with it pleasure, and more pleasure than could be attained by the pursuit of any other object then within reach. As to what is commonly

known as the "hysteron-proteron of the hedonistic psychology" I have nothing to add to what has been urged by a host of writers among whom it will be enough to mention Bishop Butler, Prof. T. H. Green and Prof. Sidgwick. But the question before us is not whether other things can be desired beside pleasures, but whether pleasures are or are not capable of being desired at all. Certainly I do not believe that an angry man desires vengeance because he has calculated—from his own experience or the recorded experience of others—that the pleasures of vengeance are the sweetest. Certainly there are cases where a man gratifies his anger or his desire of vengeance with the certain knowledge that his act will entail pains which no impartial calculation of pleasures could possibly conclude to be outweighed by the pleasure of satisfied anger or revenge. (We are obliged to use the language of common life, though of course upon the assumptions of the hedonistic psychology there could not really be such a thing as anger or passion of any kind.) Unquestionably there are cases where the uplifted arm would not be stayed by the most demonstrated certainty of the greatest sum of pleasures that earth has to offer. But is all this equally true of cases where a man desires to eat or drink something which experience has shown to be pleasant? The contention we are examining would seem to involve the assertion that, when a man who is not thirsty or in quest of health drinks port, he is impelled by a desire of port—port as such, port for port's sake. The niceness of the port is, it would seem to be hinted, a quite irrelevant circumstance. What he wants is port because it is port, not port because it is nice. If that were so, it would seem that the uplifted glass would not be put down even if some fellow-reveller warns the drinker, "Don't drink this, it is beastly". If the desire of port were based upon some antecedent desire other than desire for the pleasure of port drinking, it would seem that the warning must necessarily pass unheeded. It may possibly be urged that what the man wants is both port and nice port: but that of course is to admit the opponent's case; the desire for pleasant sensation is one of his desires: he does desire pleasant sensation just because it is pleasant, whatever he desires or does not desire besides.

There is another way of meeting the case. The position in question when turned from a negative into a positive form would seem to amount to this: pleasure is always the result of the satisfaction of some desire or some want other than the desire of the pleasure. That most of our highest desires and some of our worst ones are of this character has already

been admitted, though I believe that the "disinterestedness" of the so-called "disinterested desires" is a question of degree: in many cases a really disinterested desire is greatly stimulated by the experienced pleasure of satisfaction. But, however this may be, I fully admit that most of our pleasures are conditioned by the presence of some desire which cannot be described as a desire for pleasure, or by some want or appetite of a kind which it is better perhaps to distinguish from the more rational class of "disinterested desires". There is a pleasure in getting warm when I am cold, in eating when I am hungry and so on. But are all pleasures of sensation of this kind? Such a contention seems to be opposed to the most familiar experience. I certainly often rise from my chair and stand before the fire, though I am not in the least cold, simply because experience has shown me that the practice is attended with pleasure. The continental stove may more than satisfy our desire of warmth, but Englishmen persist nevertheless in preferring their uneconomical open fires. The medical profession would be ruined if there were no pleasure in eating after hunger is satisfied or if such pleasure could not become the object of desire. Moreover, the pleasure is in many cases quite independent of any previous desire at all—whether for that pleasure or for anything else. Where the pleasure arises from the satisfaction of desire, the pleasure cannot be felt when the desire is absent. If knowledge is forced on those who have no desire for knowledge, its attainment is often found by no means conducive to pleasure. But the fanatical teetotaler's appreciation of champagne might be by no means lessened by the fact that he had drunk it under the impression that it was the lemonade for which he had craved. That the pleasures of smell are independent of previous desire attracted the especial notice of Plato. And while this independence of previous desire is characteristic of certain kinds of mere sensation, it is not limited to sensual pleasures. It is especially, I think, characteristic of the æsthetic pleasures. My appreciation of a landscape or a picture is in no way diminished because it comes in my way at a moment when I am thinking of something quite different. And if it be said that it appeals to me only because it satisfies a permanent desire for the beautiful which is capable of being aroused by the presentation of that which will satisfy it, one may ask, "How in the first instance is the desire of beauty aroused?" Is it normally the case that people are led to the search for beauty by a craving for what they have never experienced—as many both of the highest desires and of the lowest appetites do

undoubtedly exist before they have received any satisfaction at all? Is it not rather some new, some unsought for, some wholly unanticipated experience of the pleasantness of beholding beautiful things which first rouses the desire to see more beautiful things?

I cannot help thinking that few even of those who deny the possibility of a "sum of pleasures" will agree with Prof. Mackenzie and Dr. Caird in holding that even particular pleasures cannot be the object of desire. But then it may be said: "Yes, *a* pleasure may be desired, but not pleasure —a particular pleasure but not pleasure in general". I have already admitted that we can never desire to enjoy pleasure alone; the pleasure must always come from some feeling, thought, or volition. So obvious a truism has, so far as I am aware, never been denied. But need we always set our heart upon the enjoyment of some particular pleasant thing? There is something in common between all the things which give us pleasure: and that something is surely capable of being made the object of pursuit. When a boy begins to smoke, he is certainly not influenced by the desire of the characteristic smoker's pleasure, which he has never enjoyed and will not enjoy, very probably, for some time to come. There can be no image before his mind of a definite pleasant content; he does not know what the smoker's pleasure is, but he knows what pleasure is in general, and he knows that he likes all kinds of it which he has ever experienced. And, when he has gathered from the relation of credible witnesses that smoking is a source of pleasure, that is enough to set him in pursuit of it. If a booth were set up in a fair with the announcement "Pleasure here, 6d.," it is possible that it would not attract a large number of sixpences because there might be doubts as to the probabilities of the promised article being really supplied; but it does seem to me a strange position to deny the psychological possibility of some one individual paying his sixpence, not (as it is very likely some would do) for the pleasure of satisfying curiosity but with the definite expectation of getting a fair sixpennyworth of enjoyment, and a broad-minded indifference as to the particular species supplied—so long of course as it was a pleasure to him.

I feel some diffidence in attempting a solemn argument in defence of a thesis which (with all respect for the eminent persons who deny it) seems to me so obviously true; and I confess I find it difficult to understand what exactly it is that it is really meant to be denied when it is said that pleasure cannot be an object of desire. Is it the obvious fact that what we each care about is not all pleasure equally, but

the particular pleasures which appeal to us? That is quite true, but then of course that which gives *me* no pleasure will not satisfy *my* desire of pleasure; nor shall I be much influenced by a desire for the pleasures which, though they *are* pleasant I care little about or which cannot be attained without sacrificing objects about which I care more than for such pleasures—perhaps more than for any pleasure small or great. Or is it implied that, though I do desire all pleasant things which really are pleasant to me, I do not desire them in proportion to their pleasantness? I agree, but that is only to say that I desire other things besides pleasure, and moreover that (speaking generally) the pleasures best worth having spring from the satisfaction of desires other than the desire for pleasure. All that has been admitted. What I contend for is that it is possible for a man to desire—and that all or almost all men do desire—pleasant things simply because they are pleasant, and that, *ceteris paribus* (where no difference of quality enters into the consideration and where no other desire would be thwarted) they desire the pleasanter things more than those that are less pleasant. That is what I understand to be meant by the assertion that pleasure (and not merely particular pleasures) is a possible object of desire.

There is one more line of argument which I would briefly suggest. Will those who deny that we desire pleasure, maintain that we have no aversion to pain? Here it can be hardly contended that it is merely certain particular psychical states—which merely happen to be painful—which inspire aversion, or that it is not the pain as such that we try to avoid, but merely the frustration of some other desire, of which pain is a mere accidental accompaniment. It is, of course, often the case that pain is the symptom of something organically wrong, and again that mental pains do largely result from the frustration of some desire. But there are many conditions of body to which we should have no objection for any other reason than that they happen to be painful. Who would care about being told by a physiologist that certain thrills are coursing down his nerves if they did not reveal themselves in painful sensation: or that there was caries in his tooth if he could be sure that the tooth would never become either painful or less useful? If you will insist on abstracting the content of pain from the pain itself, it is surely the pain that we avoid, not the content. We avoid pains, the content of which we know nothing about. We do not think it necessary to try new pains which we cannot without experience even picture to the imagination, under

the expectation that, though other pains are to be avoided, it might turn out that this pain was rather desirable than otherwise. If we know that the psychical state produced by such and such a bodily affection is painful, that is quite enough for us. Unless they suppose the pain to be a means to something other than itself or an inseparable element in some other good, all rational men avoid it: and it will hardly be denied that they avoid the severer pains more than the less severe. All pains are to them an object of aversion, and objects of aversion in proportion to their painfulness. That is what is meant by saying that pain as such is an object of aversion. I do not know that any one who admits that pain is an object of aversion but still denies that pleasure is a possible object of desire can be convicted of any actual logical inconsistency: but the position is, to say the least of it, a singular one.

(*b*) But as I have already indicated, there are writers whose denial that pleasures can be summed or that a sum of pleasures can be desired does not carry with it the assertion either that pleasures are not possible objects of desire or even that pleasure in general may not become the object of pursuit. Their objection to a summation of pleasures rests upon other grounds; and seems for the most part (so far as I can gather) to be based upon the very simple fact that we cannot enjoy a sum of pleasures all at once—that a sum of pleasures is not capable of existing altogether at a given moment of time. Perhaps the best way of dealing with this objection will be to point out that the contention is as fatal to the existence of a desire for pleasure or even for one single definite pleasure as to the desire for a sum of pleasures. The briefest pleasure occupies a sensible time: and there is no time that cannot conceivably be subdivided into two halves. If, therefore, I cannot desire anything which I cannot have all at once, I could not desire either pleasant consciousness in general or any particular state of consciousness which is pleasant. The argument in fact goes further than this: it would prove not merely that pleasure cannot be desired, but that there can be no such thing as pleasure, since an indivisible point of pleasure could not be felt at all and therefore would not be pleasure. If so, of course, *cadit quæstio*. But I must ask to be excused from attempting the task of proving to the sceptic that the word pleasure signifies something which has real existence.[1]

[1] The reader may possibly demand at this point a definition, but to discuss definitions of pleasure would require a separate article. Most of the attempts at definitions fail so grotesquely that I feel little inclination to add to the number.

Assuming that there is such a thing as pleasure, it must be in time: and the time or the temporal state that is incapable of division is not time or in time at all. We have heard, of course, of the timeless self and its aspirations after a good which, though it is not in time is, it seems, to have a beginning and to be capable of being brought about by human acts which take place within the time series: but I am not aware that the supporters of the timeless self have ever assigned to it a timeless pleasure. At all events, if any such thing there be, it must be something quite different from what I—and, I am persuaded, the majority of my readers—understand by the word. As I understand a sum of pleasures, every pleasure is really a sum of pleasures: it is impossible to desire pleasure at all without desiring a sum of pleasures. What I understand by the assertion that I desire a sum of pleasures is, that I desire to enjoy pleasure as intense as possible and for as long as possible—that I regard two minutes' pleasure as more valuable than one minute of the same pleasure, and further that I regard the intensity of one pleasant moment as something which can be compared with the duration of another pleasant state, so that on comparing the duration and intensity of pleasure which will be secured by one course of conduct with the duration and intensity of pleasure which I may win by another, I can pronounce which on the whole appears to me to possess the greatest pleasure-value, and that (in so far as I am in pursuit of pleasure to the disregard of other considerations) I shall determine my action by that judgment. I do not see how I can put the matter more clearly, and therefore I proceed to the examination of the second of the theses which I have undertaken to deny.[1]

[1] Prof. Green's argument against the idea that something which cannot be enjoyed all at once can be the *summum bonum* does not directly concern us here, but it seems to me open to much the same objections as have been made against the denial that a sum of pleasures is a possible object of desire. His argument seems to amount to the assertion that a sum of pleasures cannot be made the object of pursuit because you can never reach it, while a greatest possible sum of pleasures is a contradiction in terms, because when you have enjoyed any given amount of pleasure, it is always still possible to desire more. I should myself be prepared to contend that any other view of the ethical end is liable to the same objection, since any good for man must be in time, and can never be summed once for all as a κτῆμα ἐς ἀεί; but I am not arguing that a sum of pleasures is the true ethical end, but only that it is an intelligible object of pursuit. A greatest possible sum of pleasures means that as much pleasure should be got into a given time as possible and that the time in which we are enjoying pleasure should be as long as possible. Nobody, I take it, has ever maintained the possibility of arriving at a sum of

II. It is asserted that whereas the proposition "this pleasure is greater than that" has a meaning, the judgment is not quantitative.

The idea that degree involves quantity is pronounced by Prof. Mackenzie a crude notion;[1] but it is a crude notion which has commended itself (unless I greatly misunderstand them) to Kant, to Mr. Bosanquet (*Logic*, i., p. 118), and on the whole to Mr. Bradley. I do not propose to discuss the matter more in detail as a matter of pure Logic, but will simply refer to Mr. Bradley's very subtle paper on the question: "What do we mean by the intensity of psychical states?" in MIND, January, 1895. I do not underrate the difficulty, insisted upon by Mr. Bradley with his usual penetration, of saying exactly what it is that there is more of in one psychical state—a state of pleasure or a state of heat—than in another. But Mr. Bradley, though his discussion is mainly aporetic, seems to be indisposed to deny that, however this question be answered, the judgment is quantitative (*cf. Ethical Studies*, p. 107). And I find it difficult to treat seriously the assertion to the contrary. We certainly say: "This is *more* pleasant than that". The position that the word *more* does not involve the idea of quantity is so startling that I must excuse myself from further discussion of it until it be developed in more detail than has been the case.

Whatever be thought of the logical doctrine that degree does not involve quantity, it is enough for my present purpose if it be admitted that one whole state of consciousness of a certain character is pronounced more pleasant than another, provided it be conceded also: (*a*) that the total pleasure in each case is made up of a number of successive moments; (*b*) that a certain degree of intensity is actually judged to be the equivalent of—and may influence desire as the equivalent of—a certain degree of duration: in other words, that a man in pursuit of pleasure may choose a less pleasure for a longer time rather than an intenser pleasure for a shorter time; (*c*) that a whole pleasant state may be analysed into various distinguishable elements.

The first two of these propositions can hardly, as it seems

pleasures in any other sense. The greater durability of some other sources of satisfaction than others is no doubt an important reason for the higher value we attribute to them, but the consciousness enjoying even the most spiritual good must be in time; the enjoyment of it can never be so far exhausted that we can say that an addition to it would be no addition to the good hitherto enjoyed.

[1] *Social Philosophy*, p. 215.

to me, be denied without going the length of saying that the duration of a pleasure, if it only be intense enough, is a matter of absolute indifference to us. And Prof. Mackenzie, in a moment of metaphysical exaltation, really does seem prepared to go to this amazing length. "A moment of blessedness," he tells us, "would be as good as an eternity, because the eternity would only go on repeating the blessedness and not increasing it."[1] I can only say that most of us would attach considerable value to what Prof. Mackenzie dismisses with a contemptuous "only". If we could attain this moment of blessedness, that is exactly what we should want—that it should be repeated as often as possible. There is no arguing about these matters of psychological experience and ethical judgment. I can only say that as a matter of fact I would not take the trouble to walk across the street to get a moment of blessedness if I were assured that the blessedness would occupy my consciousness only for $\frac{1}{100}$ of a second. I will add once more a reminder—too often forgotten in the polemics of anti-hedonists—of the parallel case of pain. Prof. James has said (I quote from memory) that the utmost degree of torture of which human consciousness is capable would be a matter of supreme indifference to him if he could be assured that it would last only $\frac{1}{100}$ of a second. Would Prof. Mackenzie be prepared to say that if condemned to such a torture it would be a matter of indifference to him how long it went on?

If then duration of pleasure is desired as well as intensity of pleasure, will it be denied that, in choosing between two pleasures (*i.e.*, between the psychical consequences of alternative acts of choice) we do balance duration against intensity, and choose that which promises most pleasure on the whole—the discomforts of a four hours' passage on a good boat against the horrors of two hours on a bad one, or (if income be limited) the three hours of fierce delight (*plus* a certain amount of retrospective pleasure afterwards) which five shillings will buy at a theatre against the calmer but more prolonged enjoyment of a five-shilling book? This is all at bottom that is meant by the much-decried idea of a hedonistic calculus—all perhaps that it is absolutely necessary to contend for. But there is, as I have suggested, one point more—not perhaps absolutely essential to the idea, but usually implied in it, and it is this perhaps which is most apt to be denied by the more moderate of those who object to the expression "sum of pleasures"—and that is the

[1] *Social Philosophy*, p. 208.

notion that the total whole of pleasant consciousness is made up of distinguishable elements. I say distinguishable, *i.e.*, logically distinguishable, not capable of actual separation. My consciousness at any given moment is no doubt a whole which cannot be separated into parts like a material object, but it is possible to distinguish in this total psychosis many different elements. Sometimes the elements are capable of being distinguished even to the extent of retaining approximately when in combination the pleasurableness or painfulness which they have when separate. Thus I may be conscious at one and the same time of a pain in my toe, another in my head, and a pleasant interest in the story that I am reading. At other times, and this is generally the case, no doubt, where no definite local pain enters into consciousness, the elements seem so far fused together that it is only by a considerable effort of reflexion (aided by memories which enable me to apply the method of difference or of concomitant variations) that I can distinguish how much of my total pleasant state is due to the different elements. That is the case, for instance, when I ask myself how much of the general sense of exhilaration which I have experienced at a pleasant party was due to the dinner, how much to the champagne, how much to the company; or when I attempt to say how much of my depression is due to biliousness and how much to the disappointment or annoyance on which at such seasons I am apt to brood.

And yet, in spite of all the difficulties of such discrimination, we do make such distinctions in reflecting upon past pleasures, and we use the result of such experiences in guiding our choice in the future. We have two invitations for the same night. We say to ourselves: "True A's dinner will be less apolaustic than B's, but I like B's indifferent champagne better than A's superior port and claret, and the conversation will be much better. Therefore to B's I will go, and A's invitation I will decline." It is true of course—and this seems to be the only serious difficulty in treating such cases as a summation of pleasures—that the hedonistic value of a pleasure in combination with others may be something quite different from its value when taken by itself (or rather, since we never do enjoy an assignable pleasure absolutely "by itself") when experienced in a different psychical setting or context. The dinner which helps us to enjoy the evening in pleasant company would simply bore the man who is not a gourmand, if consumed in solitude or in the company of dull persons. The values that we sum are altered by the summing or rather by the combination

And this objection may be treated as fatal to the whole idea of a "sum of pleasures". But I reply that it is not the values that they have in separation but the values that they have as elements in the whole that we are summing; though our experience of them in separation or in other surroundings may be more or less of a help in estimating how much they will contribute to our enjoyment of the total consciousness into which they enter. It is true that my enjoyment of a certain man's company may be either greater or less when I meet him in a Swiss hotel than when I meet him in a college common room: but that does not prevent my experience of his society in Oxford leading me to think that his presence will be a material addition to my enjoyment at such and such a Swiss hotel and determining me to go there in preference to one which I should otherwise have decidedly preferred. It is then undeniable (as it seems to me) that we can distinguish elements in a whole of pleasant consciousness. The society of my friend and the enjoyment of Alpine scenery may give me a combination of pleasure both greater and different in kind than I should derive from the two taken separately. But that does not prevent my putting together in my mind the probable enjoyment which I shall derive from the scenery and the probable enjoyment which I shall derive from the company of my friend, and recognising that the two elements go to form a whole of pleasure which is greater than either. If on comparing any two whole psychoses I find that one would be preferable to the other but would become less desirable when a certain assignable element is taken away, there is (as it appears to me) a real meaning in saying that such a whole of pleasure is a sum of pleasures. No doubt, as the logicians remind us, the whole is something more than the sum of its parts; but the expression "whole" and "part" have a real meaning for all that: the whole *is* the sum of its parts, though it is something more. Or to take a more concrete and material parallel, I may judge how many pailfuls of water it will take to fill a cistern by adding together the capacity of each pail, though I must not forget to allow for the considerable quantity of water which will be lost in the process of adding them together, or the quantity that will be added if it is raining.

III. There remains for discussion our third and last thesis: that, though one pleasure may be greater than another, it can never be described as twice as great—that degrees of pleasure cannot be numerically expressed.

The question raised by this assertion is to my mind much more difficult and debatable than any that we have so far discussed, and the assertion that pleasures do admit of arithmetical measurement is in no way necessary to justify us in talking about a sum of pleasure or a hedonistic calculus. I hasten to add that as a general rule our judgments about pleasure are expressed in the form of "more" or "less," not of so many times more or less. It is only in the simplest cases that we can attempt to compare pleasures with so much nicety; and, as such judgments are of no practical use, we do not commonly make them. Still, I am prepared to maintain that the judgment "this pleasure is twice as great as that" is not absolutely without meaning. In the first place, it appears to me self-evident that the value of a pleasure is dependent upon its duration, and that two minutes of a given pleasure may be fairly said to be twice as pleasant as one minute of it—if it is really the same pleasure and is not diminished by satiety. Further, believing that we are in the habit of equating the intensity of pleasure with a certain duration of it, I hold that it is possible to indicate our sense of the comparative intensity of two pleasures by expressing them (so to speak) in terms of duration. If it is a matter of indifference to me whether I enjoy one minute of one pleasure or two minutes of another, I may reasonably be said to regard the one pleasure as twice as pleasant as the other. Even in far more complicated cases—even in estimating the extent to which various elements contribute to a total state of continuous pleasure—it does not seem to be meaningless to express one's sense of the comparative value of the different elements by assigning to them numerical values. In comparing one friend's dinners with another's there would be nothing unmeaning—though for many practical reasons we rather avoid such exact mensuration of pleasures—in assigning so many marks to the dinner, so many to the wine, so many to the conversation with (if you like) a few plus or minus marks for the arrangement of the table, the post-prandial music and so on. We might express our sense of the comparative enjoyment afforded by the two entertainments and the extent to which each element contributes to the total, by assigning marks to each such element and then adding them together. I admit that such numerical expressions would in general be wholly useless, but it would correctly express the sort of way in which we do make up our minds between alternative courses by a mental or ideal summation of the pleasure which we expect to derive from them. When we have

decided on which side the balance lies, we usually stop, because when we have determined that we are going to prefer A's entertainment to B's, no purpose is served by attempting to estimate or to express the degree of our preference. As a general rule there would be no use in such an attempt, but it is possible with a little ingenuity to imagine circumstances in which it *would* be of use. If a prize were offered to the host who would give us most pleasure in the course of six entertainments with or without a certain limit to the expense, the judges in such a competition would, I imagine, have to record their impressions of each entertainment in some such way—very much as a man who is judging prize poems might quite intelligibly (though I do not recommend the method) arrive at his decision by assigning so many marks for language, so many for ideas, so many for rhythm, and so on. To avoid an irrelevant objection I admit at once that it is very rarely—and only in regard to the choice of mere amusements and not always then—that we do make our conduct depend upon such purely hedonistic calculations, unmodified by other considerations. I may add that, if there seems to be something rather tasteless and repellent about the analysis of these hedonistic calculations for ourselves, we have constantly to make them for others. A man who has determined to provide a school treat for a number of children, and to devote thereto a definite sum of money, aims, I suppose, at producing a maximum of pleasure; though I have heard a Moral Philosopher of some repute gravely express a doubt as to whether the good-will could ever express itself by giving pleasure to others. The giver of such a treat knows that, if he provides fireworks, he must cut down the prizes for races, that if he gives the children a better class of cake he will not be able to give them sweets too, and so on. If it helped him (and it is quite possible that it would help an old schoolmaster) to express the value of the pleasure which each shilling expended in different ways would buy by assigning marks to each item and then totting them up, I do not see that there would be anything essentially unmeaning or irrational about his procedure. No doubt in such cases our estimates are exceedingly rough, but that does not make it actually impossible to express our judgment in numbers. It is far easier to say that one flock of sheep is bigger than another than to say by how many it is bigger, but that does not alter the fact that if one flock is bigger than another, it is because it contains more sheep.

Our estimate is none the less quantitative because it is vague.[1]

But I have not yet done justice to Prof. Mackenzie's strongest argument. He tells us that the proposition "this is twice as pleasant as that," is as unmeaning as the judgment "this is twice as hot as that". Now I admit fully that in the case of sensible heat or of any other sensations which admit of being arranged in a scale, quantitative measurement is essentially impossible. But I contend that pleasure does not belong to this category at all, and I will try to show why. The reason why it is impossible to express degrees of sensible heat quantitatively is that there is no equivalence between the difference between any two degrees of sensible heat and the difference between any two other degrees. Let the line A Z represent the various

A B C D E F . . . . . Z.

possible degrees of sensible heat ranging from a coldest A to a hottest Z (of course I do not attempt to answer the physiological question whether there is a minimum or maximum of possible sensible heat). The reason why I cannot mark off this line into degrees to which I might assign numbers like the numbers which express the degrees of physical heat on a thermometer is that I cannot say that D is as much hotter than C as Y is hotter than X. But in comparing pleasures I have no difficulty in doing this. If I would as soon have pleasure X raised to Y as pleasure C (lower down on the scale) raised to D, then I can intelligibly say that the difference between X and Y is equivalent to the difference between C and D. To take a concrete case: if a bank clerk is offered an addition of £50 a year to his salary or a diminution of his day's work by half an hour, and were, after consideration, conducted wholly on hedonistic grounds, to say "I really don't care," we should be entitled to say that the pleasures which he would obtain by the expenditure of £50—made up of course by an addition of the pleasure derived from so much better eating and drinking, so many more nights at the theatre, or from so many more books and a more enjoyable summer holiday—was the equivalent of the enjoyment which he would derive from 280 half-hours' leisure. It may be said that after all we have here only quantitative equality, not numerically defined inequality. But then I should proceed to argue that the enjoyment of

[1] Mr. Bosanquet has attempted to show that such judgment *may* be only qualitative, but he is thinking of the unreflecting and unanalysed judgments of savages, and even so he is not convincing.

say 280 half-hours' leisure is made up of the pleasure derivable from the repetition 280 times of the enjoyment derivable from one half-hour's leisure. The amount of pleasure derived from an extra half-hour would of course in fact vary on different days; but he would expect a certain average of enjoyment on each day: and it would therefore be quite intelligible to say that the pleasure derived from £50 of additional income would be exactly 280 times the pleasure derivable on an average from half an hour's additional leisure. Once again I must admit that I feel there is something rather childish in such calculations which are never made in practice—any more than we attempt to say by how many grains one heap of sand is bigger than another. Nevertheless, I maintain that in such cases the judgment is quantitative and might (so long as we confine ourselves to such simple cases) intelligibly be reduced to numbers. The fact that we can have a very decided and well-grounded opinion that one total is larger than the other total, while any attempt to express our comparative estimate by numbers would be the wildest and most unprofitable guess-work, does not affect the question. The difficulties in the way of any exact mensuration of pleasures seems to me to be practical rather than theoretical. Some of these difficulties are too obvious to mention, but there is one which it may be well to notice, because it is, I believe, at the bottom of many people's objection to the whole idea of a sum of pleasures.

It is assumed that we cannot sum pleasure unless we suppose pleasure to be made up of a number of isolated pleasures, as though quantity were necessarily discrete. But space and time and everything that occupies space and everything that occupies time, possess quantity, and yet space is not made up of points or time of moments. Pleasure, like time and space, is a continuum. In measuring things in space and time we have recourse to arbitrarily chosen units. And in so far as we are taking account of the duration of pleasures merely, the units of time are applicable also to the case of pleasures; there is nothing essentially unmeaning in applying these units to the measurement of pleasures, and saying that a pleasure that lasts an hour is four times as great as one that lasts only for fifteen minutes. But such calculations are of little use to us, because as a rule we cannot assume that the same feelings, emotions, occupations or what not will continue to produce pleasure at the same rate for long periods which they produce for short periods. What interests us for five minutes would bore us in an hour; and conversely things which would interest us

if we had an hour to give to them would awaken no interest in five minutes. There are books which we do not care to read for less than an hour and others which we should not care to read for so long. Duration, therefore, though an important element in the mensuration of pleasures, does not often practically help us much to an accurate measurement, even where we are dealing with the same external source of enjoyment: and, when we turn to the intensity of pleasures, the want of any satisfactory unit of pleasure is still more obvious. But the difficulty of saying how many units of pleasure there are in a given lot or sum of pleasure does not prevent our arriving to a mental estimate of its quantity and comparing it with the quantity of other pleasures—just as an ignorant savage choosing burdens to carry across the Sahara may have very clear ideas of magnitude and weight without any knowledge of inches or pounds.

That we make such comparisons and pronounce which of two stretches of consciousness is the most pleasant on the whole, seems to be admitted by some who still object to the term "sum of pleasures". Such persons seem to mean that our estimate of the total pleasure that we shall get from one course of action as compared with what we shall get from another is arrived at without any previous mental addition or summing of pleasures. That we do not, as a rule, consciously divide up our prospective pleasure into units, and thus do a sum in arithmetic, I have already admitted. But how we can arrive at an estimate of the amount of a whole without putting together a number of parts is to me unintelligible. When I am deciding in which of two ways I shall spend a day or a month devoted to recreation, I certainly do go over in imagination the various hours of the day or the probable occupations of the various days in a month, as it will be spent in each way, and make a rapid estimate (picturable in imagination though not actually reduced to terms of any pleasure-unit) of the amount of pleasure which I shall get into each portion of it (though I admit that the portions are not necessarily marked off from each other by exact time-measurements), and then think which comes to the most. If any one tells me he is not conscious of doing so, I should be quite prepared to admit that he really makes such calculations in a less conscious and deliberate way than I am at times conscious of doing myself. Indeed, I believe that the disputes which have arisen on this subject are very largely traceable to differences between the mental habit of individuals; but the idea of a quantity—a quantity occupying time—which does not consist of parts and is not made up of the

addition of parts remains to me an unintelligible paradox. If it consists of parts, the parts must surely all be looked at before we can pronounce upon the pleasurableness of the whole. Whether we can take in the whole quantity of pleasure by (as it were) a single mental glance, or whether we mentally run over the parts in succession, is a mere accidental difference of psychological habit. I am no less summing the number of sheep in a flock when (as may be done by an experienced shepherd) I pronounce how many they are by a look at the whole flock together than when I have laboriously to count them. Further, I am directly conscious that in estimating the total of pleasure I take into account the intensity of successive time-reaches as well as their duration; and this process can hardly be performed without thinking of the successive portions of time. If the whole time is likely to be equally pleasant, I may no doubt proceed at once to multiply (so to speak) intensity by duration: if the successive portions are likely to be very variable, I must surely think how much pleasure or pain there will be in each before I can say how much there will be in the whole. If such a process of estimating a total quantity after estimating the constituent quantities is not to be called addition and subtraction, I should be grateful to any logician who will tell me more precisely what mental operation it is. At all events that is what I mean by summing pleasures. If anybody means the same thing but objects to the word, I can only say that I see no objection to it except the fact that it has been used by Hedonists, and that some people consider it necessary to object to everything which has been said by Hedonists: but the question of the word is of comparatively small importance. And if in the view of some of my readers I have not succeeded in hitting the exact point of their objection to the idea of a "sum of pleasures," I may be allowed to add that I have never yet met two persons who are exactly agreed as to the grounds of their anathema.

One more of these objections may, however, demand a moment's notice. To some the objection to the notion of a sum of pleasures seems based upon the alleged impossibility of adding one man's pleasure to another's. It appears to be denied that two people's pleasure is *more* than the like pleasure of one person. Of course it may be possible to find senses in which this might be the case. In the mind of those who make the objection, the summing of the pleasure of different persons seems to carry with it some suggestion that pleasure is a thing that can be actually separated from the consciousness of the person enjoying it, divided into lots,

and handed about from one person to another. If any one has fallen into such a confusion, I venture to submit that it is the people who object to the mental addition of different people's pleasure, and not the people who contend for its possibility. The objection seems, in fact, to be little more than a question of words. The question whether two people's pleasure is not twice the like pleasure in one person's consciousness must depend on the purpose for which the addition is to be used. The meaning which I attach to the assertion is that I regard a certain amount of pleasure in two persons as twice as important as the same amount in one; and *ceteris paribus* I regard it as a duty to promote more pleasure than less pleasure. If this last proposition is to be denied, we have arrived at an ultimate difference of ethical ideal: if it is admitted, I do not see how duty is to be fulfilled without mentally adding together, multiplying, the amount of pleasure by the number of persons enjoying that pleasure or (to avoid cavil) enjoying a like amount of pleasure. If this is admitted, where is the objection to the convenient phrase "a sum of pleasure"?

So far I have been dealing with the comparison of pleasures which are the same in kind—that is, as I understand it, in which the greater or less pleasurableness of the two pleasures is the only ground upon which we base our judgment as to their comparative preferability. Is the case altered when one pleasure is higher than another? It is impossible to answer the question without attempting to define what we mean by saying that one pleasure is higher than another. And here I must be allowed to be dogmatic, because I must be brief. I hold that, when we pronounce one pleasure higher than another, we mean that though both of them are pleasant—it may be equally pleasant—the one is more valuable than the other for some other reason than its pleasantness. What I prefer is really the superior moral or intellectual quality of the pleasant psychical state, not its superior pleasantness. If I compare them simply as pleasures, I make abstraction of all qualities in them except their pleasantness. And pleasure in the strict sense of the word—the abstract quality of pleasantness—can differ from pleasure only in quantity, extensive or intensive. Hence it appears that strictly speaking there is no difference in quality between pleasures considered simply as such, though there may be between pleasures in the popular sense of the word, *i.e.*, there may be difference in intrinsic value between two states of consciousness equally pleasant. The distinction would be conveniently expressed by saying: "Pleasure can be estimated only quantitatively,

but pleasures may differ in kind"; or, "Pleasures differ in kind, but not *qua* pleasures". Some philosophers who are not Hedonists may be prepared to deny that any distinction can be made between the value which things have as pleasure and the value which they have on other grounds, and to contend that an ethical judgment always refers simply to the ultimate value of a certain state of consciousness. Such a contention (which cannot be adequately discussed here) would seem either (1) to bring back Hedonism under another name, or (2) to get rid of the idea of pleasure altogether. I am quite clear that in my own mind I make a distinction between the pleasantness of things and their value. As I understand the word 'pleasure,' the less pleasant of two states of consciousness sometimes presents itself to me as the more valuable.

When it is said (as it is by some, though I cannot point to any published expression of that view) that pleasures differ in kind *qua* pleasures, I do not know what can be meant by the doctrine unless it be the undoubted and important fact that the pleasurableness of a total state of mind is inseparably bound up with the value that it has on other grounds. It is not a mere accident that various states of mind to which we attribute higher value than other states of mind on account of their intrinsic worth do happen to be also pleasant. When I say that the contemplation of beauty seems to be good as well as pleasant, while the sensation derived from eating turtle soup seems to me pleasant, but to possess a very low degree of goodness or ultimate value, I do not first form an estimate of the value which looking at the beautiful picture would have if it were not pleasant, and then add to it the additional value which it derives from being also pleasant. The pleasantness of the æsthetic gratification is an essential part of my conception of it. I do not know what beauty would be like if it were not a source of pleasure, or whether I should attribute any value to it at all if it were not essentially pleasant; and yet I am conscious that the pleasantness is not the sole source or measure of the value that I attach to it. All this seems to be perfectly true; and it goes to show that every comparison between very heterogeneous pleasures simply in respect of their pleasantness is a very difficult and delicate proceeding. Fortunately it is for the most part useless and unnecessary, but not wholly so. It is often exceedingly difficult to say how much of the value we attribute to some occupation springs from its pleasantness, and how much from our sense of the value which it has on other grounds; and yet that is what we must do when we

compare a higher and a lower pleasure simply as pleasures. And such comparisons, though difficult, can be made. I may say to myself in a certain mood: "I should get more pleasure from going to this farce than I should from going to that tragedy"; and yet I may say to myself: "The tragedy is the nobler and higher pleasure; therefore to the tragedy I will go". On the other hand, if I were thinking only of amusement, and felt that under the circumstances it was right that I should think of pure amusement rather than of culture and æsthetic gratification, I might say: "Though it is the lower pleasure, I will choose it". I do not think it can be denied that we do not unfrequently go through such a process—sometimes for ourselves, more often in choosing pleasures for others. We should prefer to take a child to this elevating and æsthetic performance rather than to that rather vulgar pantomime, provided he will get a fair amount, though it may be a less amount, of pure amusement out of the former. But will he? We want to satisfy ourselves of this before we decide against the pantomime. Life is full of such problems, and however much we may insist on the difficulties of such comparisons, they have to be made and are made.

It is thus possible, though it is difficult, to compare heterogeneous pleasures simply in point of pleasantness. It is unnecessary to insist further on the difficulty or to analyse its causes more elaborately. But one very important practical consideration may be pointed out. It is difficult and frequently undesirable to compare very heterogeneous alternative pleasures simply from the point of view of their quantitative intensity, because to do so is to put oneself into a state of mind unfavourable to a due appreciation of the higher kind of pleasure even as a pleasure. I may enjoy (say) a sermon by a great preacher and a light but amusing novel. The pleasure is a very different pleasure; but as both are pleasures, it must, I should contend, be possible to say which is the greater pleasure when there is any very considerable difference in the pleasantness. I am certainly conscious that I have derived more pleasure from some sermons than from some novelists. But if I propose to make the question whether I will go to church and hear the preacher or stay at home and read such and such a novel turn wholly on the question which will be most pleasant, if I deliberately put out of sight all the considerations other than love of pleasure which may draw me to the preacher's feet, I should be putting myself into a state of mind in which I should be very likely greatly to underestimate the amount of pleasure which I really should get, were I to throw aside the book and go to

church. Nay, more, supposing me to decide for church on these grounds, and supposing this voluntarily adopted mood to continue, I should be very likely to miss the pleasure, for the pleasure in this case consists largely in the gratification of other desires than the desire for pleasure or for such sources of pleasure as are common to the preacher and the novelist. These desires will *ex hypothesi* be in a state of repression, whereas I shall have stimulated my appetite for those pleasures which the novel would supply in greater abundance than the sermon. Considerations like these may show the inadvisability of frequently permitting ourselves to make these purely hedonistic comparisons between very heterogeneous sources of enjoyment, but they do not disprove the fact that the comparison can be, and in some cases must be, made.

The higher pleasure is, I have suggested, a pleasure to which we attribute value on other grounds than its mere pleasantness. The problem of the commensurability of pleasures has led us up to the more difficult and, ethically speaking, more important problem of the commensurability of goods. I have tried to show that it is possible to compare pleasures—no matter how heterogeneous—and to say which is pleasantest. But is it possible to compare heterogeneous *goods*—say, Virtue, Culture and Pleasure—and say which is *best*. It is possible, though it is not always right, to aim at a greatest attainable quantum of pleasure: is it possible to aim at the production of a greatest quantum of good? That such is a possible aim certainly seems to be implied by those who make the greatest good of society the criterion of conduct (and there are few Moralists of any school who have not used some such language), and yet refuse to interpret "good" in the hedonistic sense. Upon this larger problem I hope to offer some remarks in a future article; and till then, I must adjourn the question "What is the true place of the hedonistic calculus in a rational system of Ethics?"

IV.—ON MR. SHADWORTH HODGSON'S *METAPHYSIC OF EXPERIENCE.*

By H. W. Carr.

Whatever view we take of the value of the particular philosophical doctrines of Mr. Shadworth Hodgson, or of the result of his philosophy as a whole, nothing but admiration is possible for the magnificent work which he has now given us. The *Metaphysic of Experience* is the work of one who has devoted his life to philosophy and whose work is worthy of his devotion. No one can read these volumes without recognising, what we who have had the privilege of knowing the author have well known already, that philosophy is the one absorbing interest of his life. He has not come to philosophy to justify some preconceived theory in science or theology nor has he been guided in his work by any supposed interest, ethical, political or religious. The *Metaphysic of Experience* represents the continuous labour and systematic thought of the many years in which Mr. Hodgson has been associated with the Aristotelian Society, and the splendid series of Presidential Addresses delivered by him during fourteen successive years represent the growth and development of the work now completed. There is a particular advantage to all who would understand Mr. Hodgson's philosophy in possessing it in its complete form, for completeness is a special and most interesting characteristic of the work. We feel as we read that everything has been said that could be said and as well as the author could say it. The analysis is thorough and embraces the whole of experience from pre-scientific knowledge to religious faith. We may remain unconvinced by the argument or disagree with the conclusion, but the thoroughness of the analysis commands respect.

The problem of Philosophy as here expounded may be described as the reorganisation of experience for knowledge. The method of philosophy is subjective analysis of experience and this analysis must be direct and free from assumptions. The explicandum of philosophy is the world of ordinary

common sense in its widest application, including science and religion. The analysis begins with the moment of experience, makes explicit the reflective character of consciousness, passes in order the sensations and combinations of sensations and the inferences from them that give rise to the panorama of objective thought, examines the ultimate conceptions of science, the laws of conscious action and the conceptions of the unseen world and religion. The reconstructed world of philosophy is not different in its essential features from the unanalysed world of common-sense experience, of scientific and religious conceptions. The result of the analysis is not to transform these, still less to negate them, but to make explicit and orderly what in pre-philosophic thinking is assumed and confused.

The most characteristic part of Mr. Hodgson's work and that in which he has rendered the most eminent service to philosophy is in his destructive criticism of the concepts of cause, causality, causal agency, etc., and the substitution of the conception of Real Condition, a purely empirical notion in the place of Cause with its old scholastic associations. "The term *Cause* implicitly contains two unrealisable ideas, (1) that of a total production or creation of its effect, and (2) that of an originating agency which itself requires no accounting for, but may be taken as self-existent." These two unrealisable ideas give rise to that conception of the universe as a self-existent and creative First Cause and a dependent and created world, which still looms largely in popular philosophy. Mr. Hodgson has admirably exposed the contradiction contained in this conception. Real Condition on the other hand expresses the simple empirical fact of the causal relation between particular existents within the universe and it is free from all assumption as to the nature of that relation. With the concept of cause are swept away all theories of the Absolute which would regard it like the First Cause as standing, however conceived, outside and apart from the universe, conditioning it but itself unconditioned.

The chief distinction that Mr. Hodgson claims for his philosophy is that it is entirely free from assumptions. The main charge that he brings against systems of philosophy opposed to his or occupying a different standpoint is that they are based on assumptions. Now apart from the question whether Mr. Hodgson is successful in avoiding assumptions, this ideal of philosophy without assumptions gives a distinctive character to his work. Why must there be no assumption in philosophy? Because an assumption neces-

sarily impairs the proposition, the assumption admitted into the premisses is bound to reappear in the conclusion. But is it not at least equally true that without assumption philosophy is barren, the problem you set out to solve will remain unsolved at the end? It is the latent contradictions in ordinary thought that constitute the problems of philosophy, analysis cannot get rid of these contradictions, it makes them explicit, to attempt to solve them of necessity involves assumption. But what does philosophy without assumptions mean? Mr. Hodgson apparently holds the view that knowledge is based on immediate experience and in its nature partakes of the character of immediacy, is verifiable at every step by reference to immediacy, a reference made possible by the universal subjective aspect of experience, and that the means of this reference is the philosophic method of subjective analysis. Even allowing that immediate experience in its immediacy is knowledge, which I take to be Mr. Hodgson's meaning in his analysis of the moment of experience, yet at some stage comes inference. Is not an assumption latent in all inference? Is any progress in knowledge conceivable that does not involve assumption? The only consistent philosophy without assumptions is solipsism, and solipsism is the *reductio ad absurdum* of philosophy without assumptions.

What is meant by direct analysis of experience? It is based on the fundamental distinction between *nature* and *genesis*, between *what is?* and *how comes?* and it means that the question of genesis can be and must be postponed and subordinated to the question of nature. It means that it is possible to directly interrogate experience and to get a direct and immediate answer to the question of the nature of experience. Consequently Mr. Hodgson begins by analysing the moment of experience and claims that that analysis reveals the ultimate nature of the analysandum. The moment of experience is obtained immediately by making, so to speak, a cross section through the stream of consciousness. The nature of experience as revealed to analysis is direct and immediate. To know it is not to transcend it. Experience is not a whole, the nature of whose parts consists in their relation to the whole. Every moment of experience has an in itself nature that analysis can reveal. It is in this view of experience that Mr. Hodgson allies himself with the line of the English philosophers Locke, Berkeley and Hume, and dissociates himself from the line taken by Kant and his successors. The contrary view is that the nature of experience is not directly revealed by analysis of the content of

consciousness at any moment. Experience is a whole and the nature of a part can only be fully revealed in its relation to the whole. Apart from its relation to an ideal whole any reality the moment of experience may seem to possess is a pure abstraction. Mr. Hodgson's attitude towards this view of experience is plainly expressed and is best exemplified in his charge against Hegel. The Hegelian system rests, he tells us, on an assumption and that assumption is false. Hegel assumed that thought is agency. This charge is so characteristic and throws so much light on Mr. Hodgson's central conception that it is worth while to examine it carefully.

The criticism that the Hegelian System is vitiated by the assumption that thought is agency is from Mr. Hodgson's standpoint obvious and just, but from the Hegelian standpoint it is simply irrelevant. The difference is a fundamental difference of standpoint not an imagined failure on the part of Hegel to appreciate an obvious distinction. If Hegel has vitiated his system with an assumption it is a far larger and more important one than that thought is agency, it is not an assumption within experience to be corrected by observation but an assumption about the universe, not about the part but about the whole. It is the assumption of the ultimate rationality of the universe expressed in the saying: "the actual is rational and the rational is actual". What then is the distinction between thought and agency? In Mr. Hodgson's analysis it is clear and it is essential. Consciousness as a knowing, or experience *per se*, is mere process—content, consciousness as an existent is an object known, discerned by thought not produced by it, and as object known its existence implies that it is part of an order of real conditioning, and agency lies in the real conditions of the existent consciousness, not in the thought that thinks it. I can see no reason why any Hegelian is bound to find this account inconsistent with his theory. No one will, I think, deny that a Hegelian may hold the Newtonian theory of physical force, notwithstanding that Hegel himself thought it nonsense, or the physiological hypothesis in psychology. The crux of the problem lies deeper, it is the question, are we to regard agency as a true other to thought or is there an underlying identity? Agency with Mr. Hodgson is otherness to thought and herein lies the difference of standpoint. To the Hegelian knowledge is valid because beneath the distinction of knowledge and object of knowledge lies an identity. It is logical necessity not subjective analysis or scientific research that must justify or fail to justify the Hegelian assumption.

This difference of standpoint gives rise to an entire difference in the presentation of the problem of reality. In Mr. Hodgson's theory no difficulty about reality ever arises except from confusion. The word he tells us is used in four different senses: 1. Something simply in consciousness. 2. Something which has a definite place in perception or objective thought. 3. Something which has existence independently of whether it is perceived or unperceived, thought of or not thought of at any given time. 4. Something which has efficiency as a real condition. These four senses exhaust the meaning of reality and are ultimately reducible to two senses which correspond to the two aspects of experience. For the subjective aspect *esse* is *percipi* is universal and ultimate, for the objective aspect reality means efficiency as a real condition. Now do these two senses or these four senses exhaust the meaning of the term reality? If we accept this classification must we not add a further and ultimate sense of reality in which we mean that which is self-consistent and harmonious, that which has its ground of being within itself? Mr. Hodgson does not recognise this sense of reality and consequently the problem of reality as it presents itself to Mr. Bradley, for instance, in *Appearance and Reality* does not exist for him. The real universe for Mr. Hodgson is incomplete and he sees no difficulty in making incompleteness an ultimate characteristic of reality. Incompleteness is with him the distinctive attribute of infinity. The infinity of time means that the time continuum is necessarily incomplete at either end. The infinity of space means the absence of limit to its divisibility and extensibility. The infinity of the universe means the necessary incompleteness of the series of conditions and conditionates. And this incompleteness is not a defect either of knowledge or of being but a positive qualification inherent in the very nature as well as in our knowledge of these realities. It is this view of reality which appears to me to mark off Mr. Hodgson's position from that of the Hegelians. If incompleteness can be an attribute of reality the whole distinction between appearance and reality disappears with the criterion that reality cannot contradict itself. Such a view is to me unthinkable,—carried to a logical conclusion it must be destructive of the ideal of knowledge. The view that reality means self-consistency and harmony and conversely that the inconsistent and incomplete cannot be thought of as reality seems to me to lie as evidently at the basis of Mr. Hodgson's argument as it does at that of any transcendentalist. He may not believe in its attainability but it represents the

ideal of his philosophy none the less. "For in all reasoning, whether we are engaged in analysis or in construction by inference founded on analysis, we are compelled to push the process to its farthest limits, the ideal limits consisting in either case of something ultimate and in its own kind self-explanatory, demanding and indeed capable of no further questioning" (iv., 308). How then does Mr. Hodgson meet this requirement? By keeping distinct the two aspects of experience and the two senses of reality which respectively belong to them. For analysis, immediate experience is ultimate reality, for construction, reality is an inference. This inference is not an assumption if based on the immediate experience revealed by analysis.

Is then this definition of reality as self-consistency which, if I am interpreting rightly the sentence I have quoted, Mr. Hodgson himself acknowledges, a third sense ranking *pari passu* with the two senses, or if not in what relation does it stand to them? It appears to me that to speak of two senses of reality is a contradiction, for to be real in one sense only is not to be real at all. The qualification is absolutely destructive. Self-subsistency is the ordinary and the only meaning of reality. Unless *percipi* or *agency* contains this idea it cannot satisfy our notion of reality. *Esse* is *percipi* was to Berkeley a full expression of the meaning of reality, admitting no reservation. To have replied to him that it was true of one aspect only of experience would have seemed to him a *reductio ad absurdum*. The doctrine meant the absolute and final character of perception that it was not a reference to an other which had independent reality but that it was itself, *qua* perception, real. The reality of the perception was the perception. Whether his doctrine was right or wrong he undoubtedly meant by reality self-subsistence. *Esse* is *percipi* is in no sense true if there be any sense in which it is not true.

The second or full sense of reality is to have efficiency or agency as a real condition. It is an inference based on the subjective analysis of experience and owing entirely to that analysis its justification and its necessity, or, as Mr. Hodgson would express it, its freedom from assumption. The only actual existent known to us in this full sense is matter. Matter as a real existent is inferred from percept matter, which is an immediate experience. Now why if this is so, should the inference fail to give final and absolute satisfaction? It does so fail, for Mr. Hodgson rejects Materialism as untenable and the ground of the argument is simply the failure of matter to fulfil the condition of self-subsistence.

I think it will appear that Mr. Hodgson uses reality in a quite different sense in his argument on the untenability of Idealism from that which he uses in his argument on the untenability of Materialism. In the one case reality is agency, in the other it is self-subsistence.

The plausibility of Idealism consists, Mr. Hodgson considers, in the ambiguity consequent on a confusion of the two uses of the term consciousness. Its refutation consists in showing by analysis that efficient agency is not to be found in consciousness. The idealist assumes that thinking or dialectic is *per se* its own efficient agent and does not see that the efficient agency lies in the conditions of its existence. If the idealist replies that the conditions of the existence of consciousness are universally modes of consciousness he is failing to distinguish the two aspects of consciousness, he is asserting of consciousness as an Existent what is only true of consciousness as a Knowing. The refutation of idealism consequently rests on this conception of agency. To Mr. Hodgson agency is the distinctive mark of a reality which *qua* existence is not consciousness and the idealist identifies with this real agency the movement of thought or dialectic. "It would seem that there are two ways, and only two, in which the fundamental tenet of Idealism might be established, the first positive, by showing that efficient agency is inherent in consciousness *per se*, the second negative, by disproving the possibility of a valid inference from the data of consciousness to any real existent other than, but knowable by, consciousness, whether as a Subject or as an Object of it" (iv., 378). Now in the first place these two ways are in reality not two, they are different presentments of an identical argument, for agency and otherness are the same. To take first the positive proof, I am unable to see, keeping to Mr. Hodgson's distinction between consciousness as an existent and consciousness as a knowing, that by showing agency inherent in consciousness *per se* we should establish Idealism. Consciousness as an existent is in Mr. Hodgson's system an object, it is in every sense as much an other to consciousness as a knowing as any part of the existent order, so that even if we could prove the exact reverse of this theory and show consciousness as real condition and matter as conditionate there would still remain the problem of a dual order, existence and knowledge. We should be as far as ever from establishing the idealistic tenet, "There is no Being but Knowing, or Being and Knowing are one and the same" (iv., 373). Secondly, as to the negative proof or rather the disproof that there can be a valid inference from consciousness to an other than consciousness, it

seems to me that the difficulty of all philosophy is to establish the validity of the inference from consciousness to an other rather than to disprove its possibility. To me the main difficulty of Mr. Hodgson's philosophy is to see how on his principles the inference is possible. Which of the meanings of consciousness is intended? If consciousness as an existent; that by the hypothesis is an object among other objects, if consciousness as a knowing, that as subjective aspect is universal. In other words, the otherness of consciousness as an existent must fall within consciousness as a knowing, and to consciousness as a knowing there can be no otherness except objectivity which is a difference of aspect only. The doctrine of the distinction of aspects is a doctrine of the identity of content of consciousness and object of consciousness. Consequently we have this dilemma, if a real other to consciousness can be conceived, then the doctrine of aspects is untrue, for that doctrine involves identity of content. If on the other hand we accept this doctrine of aspects we are bound to deny that there can be a real other to thought. The reply I expect is, that otherness in the sense of unknowability is not intended, externality to consciousness means agency, and that is not unknowable. But if Idealism is to be refuted the question is whether a real other to consciousness must not imply unknowability. We cannot begin by defining agency as otherness, we must show that it is otherness. The refutation of Idealism consequently rests on the proof Mr. Hodgson claims to make clear by subjective analysis that agency is not in consciousness but belongs to a real order of existence other to and independent of consciousness. This real order of existence is in its subjective aspect a mode of consciousness. In putting the question of the real conditions of matter we have, says Mr. Hodgson, "to supply, in imagination, our objective but abstract time and space with a new content composed of elements different in kind, or at any rate in the mode of their combination, from any of those co-elements of feeling which are now known to us as constituents of matter, but elements which *like them are modes of consciousness* and like them are immaterial" (iv., 289). The italics are mine. The external order is a mode of consciousness, this taken absolutely is the basis of Idealism. Any qualification must, it seems to me, assert an unknowable.

I have said that Mr. Hodgson uses a quite different sense of reality in his argument against Materialism. Materialism is rejected because Matter is not a self-subsistent reality. "Matter is the only positively known object which can be held to be at once non-consciousness and real" (i., xi.).

Matter is real in both senses of the word Reality, it is real as percept and it is real as existent. It is real condition and agent. Yet it is not an ultimate conception, we must ask concerning it the question, how comes?—Why must we? We cannot put the question, how comes? concerning time or space or the order of real conditioning, why must we put it concerning matter? The answer I think is obvious, it is because matter is a complex not a simple concept or percept. "Matter is adverse occupancy of space." "In all Matter there are parts which cohere so as to occupy space, and this coherence or occupation of space is Force. That is to say the fact of coherence taken in abstraction is Force, the coherence of parts is Matter" (iv., 295). Space is infinitely divisible, Matter is not, it has a minimum limit to its magnitude. Consequently the minimum of Matter consists of two portions of space held together, which portions imagined apart must be conceived as unoccupied or else occupied with parts of Matter which are not Matter until brought together. In other words, Matter consists of two parts of space and the force which makes them cohere. What those parts of space are by themselves, more than being parts of space we do not know. Clearly therefore Matter is not an ultimate conception whether in the sense of *causa sui et mundi* or in any sense whatever. It accounts for nothing, but itself wants accounting for. It is a composite notion and we must ask how its elements have come together and how they are to be conceived apart. The answer we cannot give, for the real conditions of Matter are in the Unseen World. It is for this reason that Mr. Hodgson finds philosophical Materialism untenable.

This whole conception of Matter appears to me contradictory and useless for any philosophical purpose whatever. So far from being a positively known reality it appears to me a mere figment of the imagination containing its own refutation in the idea of it. I have nothing to say against it as a postulate of mathematics or an ultimate datum of science, but I fail to see how it can justify itself in philosophy. It is not either the elephant or the tortoise or the something or other, I know not what, of Locke's Indian philosopher. It is a purely abstract concept which must be filled by the imagination before it becomes an object. Its simplest form is a compound of two parts with one attribute and in its simplest form it is never met with. Whatever may be thought to be explained by it, the diversity of form at any point between its simplest imaginable condition and its highest known development will raise again every problem supposed to be

solved by it. If I understand Mr. Hodgson rightly, the task of philosophy as regards it is at an end when it presents it in this simplest form as an ultimate fact to science, whose business thenceforward it is to follow out the history of its development. This would be well enough if the gift were of any value. Science would be, or at least ought to be, truly grateful for an ultimate conception of matter really simple and non-contradictory. But this is not the case with Matter as now defined, it is composite and to compose it we have to produce from our imagination a something or other, we know not what, for its content. But what purpose does it serve in this philosophy? I have already said that I conceive the leading idea and central conception of Mr. Hodgson's philosophy to be his idea of agency. It is, I think, this idea of agency that has produced this doctrine of Matter. Matter is the present resting-place of agency, its here and now condition. By saying that it is the only positively known non-conscious reality is meant that it is the resting-place of agency in the world of present experience as distinguished from the Unseen World. Mr. Hodgson is opposed to every theory that would locate agency in consciousness. The assumption of it, in his view, vitiates the most part of modern philosophy. If not in consciousness then where? is the immediate question and the answer is this doctrine of material agency. It is not the need to establish a non-conscious reality that has given rise to it, for that can be done without matter. Time and Space are real, they condition the Unseen World as well as consciousness, and they are absolutely identical in both their subjective and objective aspects, the same for Knowing and Being (*v.* iv., 277). Also the order of conditioning is real in every sense. Matter is not wanted to establish a real order of Being independent of Consciousness, it is solely required as a present home for agency. This of course is not the way it is brought forward by Mr. Hodgson. It is to him a necessary inference from percept matter and percept matter is a fact of experience, verifiable by subjective analysis. This brings me to the most important question of all in the consideration of Mr. Hodgson's philosophy, the question of the value of the analysis of experience.

Every conception used by Mr. Hodgson is justified and solely justified by subjective analysis of experience. This analysis occupies the first volume of the *Metaphysic of Experience*, and is written with extreme care and clearness and with an acuteness in detecting and exposing assumptions that commands most unqualified admiration, it has more-

over an intrinsic interest independent of its place in a system. Two questions, however, force themselves upon me in respect of it. First, is the order of knowledge here set forth a real order? And second, are its results final, in other words, is experience in the sense here given to it a final court of appeal? Let me first however make clear in what sense I understand Mr. Hodgson to intend this analysis to represent a real order of knowledge. To describe it as psychology, to regard it as literally describing the growth and development of consciousness in the human infant is I think an entire misconception. Whatever views Mr. Hodgson may hold as to the historical order of the development of consciousness in the individual, this analysis is a purely metaphysical account of the elements which constitute experience and the description of a supposed percipient progressing in knowledge is not the fact set forth but the device adopted for setting forth the fact. Whether or not it involves any psychological theory we need not consider. What does seem to me involved by it is an atomic theory of knowledge, a view of experience that makes it consist of moments perfectly distinct, separate in thought if not in fact. A moment of experience in analysis is a simple content in time, its content is quality, its form is duration. Its time occupancy makes it curiously analogous to the conception of Matter as space occupancy, although unlike Matter the occupancy is not adverse. And just as the space element brings in my view contradiction into the conception of matter, so the time element seems to me to bring contradiction into the conception of the moment of experience. Time is infinitely divisible, but the moment of experience has duration, must we not therefore conceive it to occupy more than one part of time and consequently conceive the moment of experience to be composed of parts that are not experience? Apart however from the question of its analysis is our knowledge of this moment immediate? If all knowledge is reflective the nature of the moment as it occurs must be an inference and may be a wrong inference. Further, is knowledge constituted by these moments, and is there a real order of development from simple to complex in the manner set forth in this analysis? The first sensation that rises above the threshold of consciousness is to the supposed percipient an experience complete, so far as it goes, analysable and the subject of inference. As other sensations come and past experiences are retained, recollected and compared, knowledge gradually assumes its complete form, that is to say, the utmost expansion consistent with the limitations of the

organism in which consciousness develops. The perception of time is given in every sensation, the knowledge of space in sensations of a particular kind, and matter is known only when a combination of sensations of sight and touch have occurred, and it is only when a certain comparatively advanced stage in the order is reached that the percipient becomes aware of an order of existence independent of, prior to and the condition of the order of knowledge. Only if this order of knowledge is conceived as a real order is the question of the place in it of agency important. My first question then is, is there a real order of knowledge in this sense? The essential universality of knowledge seems to me to involve the impossibility of the knowledge of the particular as such, and such knowledge is supposed in this analysis. In my view knowledge is organic from the first, its simplest element involving relations to the whole. A purely unrelated feeling (the note struck on the pianoforte in Mr. Hodgson's illustration considered in abstraction from all relation) is not to me a something waiting to be related, it is simply nothing, its content is inexpressible in word or thought. My second question with regard to it is, is this analysis the ultimate test of reality both for the order of knowing and for the order of being? Is the truth or reality of a conception decided by an appeal to experience in Mr. Hodgson's sense? Antinomies do not trouble Mr. Hodgson, the business of philosophy is not to bring harmony into a world of baffling contradictions but to see that our conceptions are legitimately derived from our perceptions. Take for illustration time and space, they involve a contradiction even to common-sense thinking, and to philosophy the conception of their reality in the absolute sense is fatal to the conception of unity. Has philosophy then only to analyse time and space perceptions with the object of finding out what they are known as, and must it accept that analysis as the ultimate decision as to the nature of their reality? If so then we have this dilemma, that experience asserts a contradiction of reality (*e.g.*, a beginning in time which we must affirm and deny) and reason demands that the conception of reality shall be free from contradiction. It seems to me that any philosophy based on experience in this sense must lack both unity and consistency. It may be true that to ask questions the answers to which suppose a power of transcending experience is vain, and the answers void as necessarily based on an assumption, but to ask these questions is part of our nature and to endeavour to answer them has brought most of us to philosophy. Mr. Hodgson's philosophy has neither

unity nor consistency. I mean of course in the absolute sense, as a body of doctrine it possesses both in an eminent degree. This absence of unity and consistency is not regarded by Mr. Hodgson as a defect but contrariwise as due to actual insight into the nature of a universe infinite in time and space. It has, however, for a philosopher this disadvantage, that without unity and consistency there can be no system, and system is necessary for a constructive philosophy. Mr. Hodgson has given us a reconstruction based on analysis, but to me it lacks principle and fails to bring conviction. It may be right, but, if it is, it is by being a lucky guess against infinite odds.

It is in the ethical portion of Mr. Hodgson's work that the contrast between what I have called the criterion of consistency and the criterion of immediate perceptibility becomes most marked. The ethical part of this work is truly magnificent and I feel in substantial agreement with it although it seems to me unreconcilable with the world theory. The description of Conscience as Reason or Judgment dealing with the inwardness of conduct is especially fine. And here Mr. Hodgson frankly acknowledges the failure of the criterion of the merely felt and adopts the criterion of consistency and harmony. "It is not to the keenness or intensity, nor even to the felt specific quality, even in what we call the highest and noblest of the personal emotions, that their felt rightness or moral goodness is attributable; it is to their fulfilling the law of Harmony." "The whole of moral goodness may be well summed up under the two heads of Love and Justice. But these qualities, considered simply as feelings or affections, are not sufficient to account for that sense of moral validity or rightness by which they, and the actions which they attend or seem to prompt, are characterised. For this we must look to something which connects them with the whole of Existence and incorporates them with its laws, as well beyond as within the limits of our positive knowledge. Their validity arises from their being instances which exemplify and in a measure realise, in concrete existence, that Harmony which in its most abstract form is the synonym of Law itself" (iv., 190). How then does Mr. Hodgson attempt to reconcile this adoption of a new criterion with his world-theory? By differentiating practical reasoning from speculative reasoning and assigning to each a particular validity. The ideas of the Practical Reason have practical validity only, we cannot speak of their truth and falsity except with a difference. "As practical and not

speculative conceptions, their truth consists in their adequacy, their falsity in their inadequacy to the reality which they are endeavours to picture, and which, either by positive experience, or by speculative methods founded on it, is and must for us continue entirely unknown" (iv., 322). Now two kinds of truth or two kinds of validity are to me like two senses of reality ultimately unthinkable. This notion of Truth as anticipated Harmony is grandly conceived, but the limitation of its application to the practical sphere seems to me most unfortunate. It leads moreover to strange and contradictory results in the final reconstruction and not the least strange is the return in the practical sphere to that very notion of causal agency which as a speculative idea has been found untenable, I mean the idea of God as "the Power which sustains Existence in its entirety," "the Power which is the sustaining Energy of the Universe from first to last" (iv., 209).

V.—CRITICAL NOTICES.

An Essay on the Foundations of Geometry. By Bertrand A. W. Russell, M.A., Fellow of Trinity College, Cambridge. Cambridge: At the University Press, 1897. Pp. xvi., 201.

This book is in the main an attempt to determine the logical relations of the most elementary constituents of space. For this purpose Mr. Russell makes an extensive use of the modern mathematical developments of Geometry; and it is, therefore, very difficult to criticise his results without a considerable knowledge of Mathematics. This, I must confess, I do not possess; and, therefore, any statements I may make, involving mathematical technicalities, must be understood to be liable to correction. It seems impossible, however, to avoid such statements, since the arguments by which Mr. Russell endeavours to establish that certain axioms are *a priori* and others merely empirical always involve some reference to purely mathematical notions. And the chief value of the book undoubtedly lies in these discussions, since the purely philosophical questions as to how in general the *a priori* is to be distinguished from the empirical, and as to the relation of space to other objects of knowledge, are not treated at any great length; while the treatment of them, such as it is, seems liable to grave objections.

The book is divided into an introduction and four chapters.

The introduction (pp. 1-6) defines the problem with particular reference to Kant, attempting to distinguish more clearly than he had done between the *a priori* and the subjective, and announcing that the former notion alone will be used in the following discussion.

Chapter i. (pp. 7-53) is entitled 'A Short History of Metageometry'. In this Mr. Russell distinguishes three periods. In the first of these, which is very briefly handled, it was proved by Lobatchewsky and Bolyai that a system of geometry, in which the axiom of parallels was denied, could be consistently worked out. In the second period the chief names are Riemann and Helmholtz, whose object was largely philosophical. This period is marked by the use of analytical methods, particularly by the analytical conception of 'measure of curvature,' invented by Gauss, but first extended by Riemann and Helmholtz to a manifold of more than two dimensions, and by the discovery of a second system of Metageometry. The conception of measure of curvature as developed in this period is all-important for Meta-

geometry, since it makes it possible to define the quality which distinguishes non-Euclidean spaces from the Euclidean as an intrinsic property of the space in question. The third period finally is marked by the invention of Projective Geometry, a department of mathematics not hitherto discussed by philosophers, but which Mr. Russell considers to be of the utmost importance for the philosophy of space. He accordingly treats this period at greater length, endeavouring to show that Projective Geometry deals exclusively with the qualitative properties of space, and involves no reference to quantity. In this period the chief names are Cayley and Klein, the latter of whom invented a third system of Metageometry.

Chapter ii. (pp. 54-116) contains a critical discussion of 'some previous philosophical theories of Geometry'. In this chapter Mr. Russell contends that Kant's arguments suffice to prove the *apriority* of *some* form of externality, but are insufficient to determine which of the geometrical axioms are necessary to this; and he points out that Lotze's attempted refutation of Metageometry is entirely based on mathematical mistakes. But by far the greater part of the chapter is occupied by a refutation of the views of Riemann, Helmholtz and Benno Erdmann, who wished to maintain that all the axioms peculiar to geometry, that is, all those that involve other conceptions than those of quantity, are empirical.

Chapter iii. (pp. 117-177) is divided into two sections, in the first of which Mr. Russell attempts to formulate the axioms of Projective Geometry, and to deduce their necessity from the conception of a form of externality. He finds three axioms which are thus sufficient and *a priori*. In the second section he does the same for Metrical Geometry, finding the three corresponding *a priori* axioms, but emphasising the fact that for Metrical Geometry a fourth axiom is needed, which, however, he maintains to be of an empirical nature. The *a priori* axioms, whether in their projective or their metrical form, are involved in Euclidean and non-Euclidean Geometries alike. The fourth purely metrical axiom serves to distinguish the one from the other.

Chapter iv. (pp. 178-201) contains a short survey of 'Philosophical Consequences'. The subjects discussed in it are two. The first of these is the general relation of a 'form of externality' to 'experience,' in connexion with which Mr. Russell attempts to show that time alone is not sufficient for experience. The second subject of discussion is the contradictions in space, of which Mr. Russell enumerates three, deciding that each of them may be overcome if we interpret space as consisting merely of relations between unextended atoms that are in no sense in space.

Mr. Russell's general philosophical position does not seem very much to affect the main value of his book. He does not indeed discuss it at any great length, referring us constantly for a fuller treatment of important points to the Logics of Bradley and Bosanquet. Only one philosophical distinction is absolutely

essential to his purpose—that between the *a priori* and empirical; the rest of his philosophical apparatus, in which a 'form of externality' is the central conception, may be regarded merely as establishing and explaining this distinction.

In fact, however, they seem rather to confuse the issue. Mr. Russell tells us, to begin with, that his test of apriority will be purely logical: 'Would experience be impossible if a certain axiom or postulate were denied?' (p. 3). This test, he considers, excludes 'any psychological implication' from the word *a priori*. But the meaning of the test obviously depends on what is to be meant by the possibility of experience; and Mr. Russell seems actually to use this conception in such a way as to incur both the objections which can be urged against Kant's distinction between *a priori* and empirical, namely (1) that the distinction is not absolute, (2) that the *a priori* is confused with the object of psychological experience.

(1) That the distinction is not absolute would seem to follow from the twofold nature of the test which Mr. Russell gives us for the *a priori*. He tries to show not only that propositions which are presupposed in any particular science are *a priori*—a perfectly clear and simple test—but also to *deduce* the necessity of these from the necessity for experience of a 'form of externality'. Necessity, as he holds to be 'shown by modern logic,' always involves a *ground* of necessity (p. 4). But this ground must itself either be simply categorical, or else it must itself be necessary and require a further ground. In the former case we are actually trying to deduce an *a priori* proposition from one that, as categorical, is merely empirical; in the latter, which Mr. Russell seems in the end inclined to accept, we must either allow an infinite regress of necessary propositions, and thus never reach the absolutely *a priori*, or else we must accept the view that knowledge is circular, and shall in the end return to the proposition from which we started as empirical, as being itself the ground of necessity of the *a priori*, and therefore itself as much *a priori* as the latter. Mr. Russell seems actually to accept this latter view (pp. 57-60)—a view which renders his logical criterion nugatory, since it asserts that that which is presupposed in the empirical equally and in the same sense presupposes the empirical. To put the matter shortly, to show that a 'form of externality' is necessary for the possibility of experience, can only mean to show that it is presupposed in our actual experience. And this can never prove that no experience would be possible without such a form, unless we assume that our actual experience is itself necessary, *i.e.*, that no other experience is possible. (2) The only escape from this self-contradiction would seem to be by way of putting the ground of necessity in some psychological fact. And this is the subterfuge to which Mr. Russell seems actually to be driven when we find him defining his deduction from the possibility of experience as a proof that the falsehood of the judgment in

question would only be effected 'by a change which should render some branch of experience formally impossible, *i.e.*, inaccessible to our methods of cognition' (p. 60). Similarly (p. 179) he asserts: 'The ground of necessity, we may safely say, arises from the mind'. Now that which is 'inaccessible to our methods of cognition' would seem only to mean that which we cannot know; it cannot imply that the judgments in question cannot be true. But apart from a proof that they cannot be true (in which case of course they cannot be *known* in the sense in which knowledge is distinguished from belief), it would seem that the only possible way of showing that they cannot be known must be simply a psychological inquiry into the conditions that are necessary for the production of actual beliefs. The same Kantian fallacy is betrayed again very clearly on page 135, where Mr. Russell asserts that 'what is purely intellectual cannot change'. Here by 'what is purely intellectual' must be meant either what is distinguished by certain psychological marks, or what is already known to be presupposed in experience. But in the former case the fact that it cannot change can be only known empirically, whereas in the latter 'intellectual' simply means what is *a priori*, as presupposed in experience, and therefore cannot be used to confirm this distinction.

Mr. Russell's professed *deduction* of his *a priori* axioms from a necessary 'form of externality' is therefore necessarily futile; since by the necessity of the form of externality can only be meant that it is presupposed in actual experience, which he has already shown his axioms to be. But there are two points in his actual argument for the necessity of such a form which seem to call for particular notice, as illustrating the psychological implications which must be introduced in order to give a meaning to such a deduction.

Mr. Russell recognises (p. 184 foll.) that it is essential for his purpose to contend that, if knowledge is to be possible, there must be a diversity 'not only of conceptual content but of existence'; since a form of externality means a form of relation between several existents, and not merely between diverse contents. He has therefore to argue that the mere diversity of content, which we may admit with him to be implied in any judgment, is itself impossible unless there be also a diversity of existents. His argument to prove this point seems to be purely pyschological. For he assumes as a premiss that 'knowledge must *start from* perception' (p. 184). These words inevitably suggest that he is concerned only with the *genesis* of knowledge—a point of view which he has himself outruled as irrelevant to the discussion in hand. Unless he does mean this it would seem he must deny that any kind of cognition except perception is possible; since otherwise what is necessary for perception would not be necessary for that other kind. Now it is hardly possible he would refuse to distinguish between *e.g.* a mathematical cognition and

mere sense-perception — indeed he has already repeatedly done so. But in that case his whole argument vanishes; since it can at best only prove that a perception of different existents must precede, as psychological condition, any other kind of cognition.

Mr. Russell fails therefore to prove even that one form of externality, time, is necessary to the diversity implied in judgment; for he does not prove, what indeed he cannot prove, since he presupposes it, that there would be no diversity, unless we perceived diverse existents, but only that we could not come to know of it. But it is necessary for him to go farther, and to maintain that time alone is not sufficient. And here it seems possible to join issue with him on a mere question of fact. For he assumes that the complexity of an object presented in time alone must be purely adjectival, *i.e.* presumably containing a diversity of content only, not of existents. But, in fact, nothing seems more certain than that my mental state at any moment must be regarded as containing a diversity of existents, which are certainly not in space. The pleasure I have simultaneously with the cognition of a certain object is not merely diverse in *content* from that cognition; for this would be equally true of it when the cognition was repeated without the pleasure. There is therefore some other diversity between a cognition that is present and a pleasure that is present than the mere diversity between pleasure and cognition. And it seems impossible to distinguish this additional diversity from that diversity of existence which distinguishes different things in space, or which distinguishes my pleasure at one moment from my pleasure at another. It seems then certain that diverse mental things can both exist and be known to exist simultaneously, although they are not in space, and hence the argument that space is necessary for the experience of diversity is reduced to the psychological argument that a cognition of things in space is necessary either as cause or as simultaneous condition for the cognition of our own mental states.

There is one other point in Mr. Russell's philosophical conclusions about space which seems to rest on the same confusion about the relation of logical presupposition. This is his treatment of the antinomies. Mr. Russell thinks that these can all be avoided if 'space is regarded, so far as it is valid, as only spatial order' (p. 196) or 'as relations between unextended material atoms' (p. 198). 'Empty space, which arises by an inevitable illusion out of the spatial element in sense-perception, may be regarded, if we wish to retain it, as the bare principle of relativity, the bare logical possibility of relations between diverse things' (*ib.*). I think we might retort on Mr. Russell the dictum which he quotes from Lotze that 'contradictions in a necessary subjective intuition form as great a difficulty as in anything else' (p. 196); for it seems impossible to distinguish a '*necessary*

subjective intuition' from his own '*unavoidable psychological* illusion': the only possible distinction lies in the word 'illusion,' which, however, is not a psychological term, but is distinguished from 'intuition,' only as implying that its object is false—the very thing which the 'intuition' presupposed and was invented to explain. But we can not only say that such an explanation fails to avoid the difficulty; it seems that the reason why it does fail is that it involves a definite logical error. For it is only, if our intuition of space be true, that we have any reason to believe in these relations between unextended atoms; in other words, empty space and spatial order are equally presupposed in experience, and if we reject the one, we have no longer any reason for accepting the other. The same result seems to follow from a consideration of the other phrase by which Mr. Russell tries to explain away empty space. 'A mere name for the logical possibility of spatial relations' (p. 197) can surely mean nothing but 'that which renders spatial relations possible'; and hence if there be no empty space, it would seem to follow that there can be no spatial relations.

This point seems to be closely connected with another philosophical error which constantly appears throughout Mr. Russell's mathematical discussions—an error which seems to arise from a certain ambiguity in the use of the term 'relativity'. Thus Mr. Russell states on page 160 '*Position is not an intrinsic, but a purely relative, property of things in space.* If there could be such a thing as absolute position, in short, metrical Geometry would be impossible.' This statement Mr. Russell seems to regard as equivalent to the statement that all points are qualitatively similar; and he seems to base it upon the fact that 'so long as we leave matter out of account, one position is perfectly indistinguishable from another' (p. 77). A similar argument is used with regard to the relativity of magnitude. 'Magnitude' he says 'is nothing apart from comparison' (p. 87); and again 'To speak of differences of magnitude in a case where comparison cannot reveal them, is absurd' (p. 154). But it would seem that this is a purely psychological argument: it assumes that nothing is distinct unless it has some property which will enable the mind to distinguish it. Mr. Russell himself seems sufficiently to expose the fallacy of this assumption in a note on page 165; where he says 'although measurement and the judgment of quantity express the result of comparison, yet the terms compared must exist before the comparison'. The principle implied here seems directly to contradict such a statement as we find only two pages earlier: 'Positions exist only by virtue of other positions' (p. 163). The true view seems rather to be, that though positions have that qualitative similarity which is necessary for the axiom of free mobility, yet this in no way prevents them from having *also* a qualitative and intrinsic difference, though this perhaps we could not have discovered apart from the qualitative differences of

other things. As it is, we certainly have discovered it: we do distinguish different positions, as Mr. Russell says, in 'intuition'; and to assign a cause for the existence of this intuition does not impugn but rather presupposes its validity.

The assertion of absolute position in this sense obviously does not involve 'an action of mere space, *per se*, on things,' which Mr. Russell seems to regard as equivalent to it (p. 151). And thus the necessary connexion which he asserts between the axiom of free mobility and the relativity of position disappears. The assertion of this connexion seems, indeed, to be partly due to the way in which this first of Mr. Russell's *a priori* axioms is stated—a form which is indicated by the name. For Mr. Russell conceives this axiom, as distinguished from the corresponding projective axiom of the homogeneity of space, to introduce 'an entirely new idea,' 'namely, the idea of Motion'; for, he says, our results cannot be obtained 'without at least an ideal motion of our figures through space' (p. 149). It seems desirable to protest against this conception of the movement of spatial figures. It is implied in the view accepted by Mr. Russell, that superposition is the criterion of equality between spatial figures. But, in fact, 'the ideal motion' by which superposition is affected implies that we already know the figures in question to be equal. For to move a spatial figure can mean nothing more than to construct a figure equal to it in another part of space; and this can not be done, unless we know immediately when two figures in different parts of space are equal. This, therefore, 'that there are equal figures in all parts of space,' would seem to be the true form of the so-called 'Axiom of Free Mobility,' which is presupposed alike in the motion and in the measurement of things which occupy space. To conceive spatial figures as themselves moving, we must conceive them as things, whose identity in motion means no more than that they successively occupy equal spaces. For the equality of these spaces themselves there is then no possible criterion. Its necessity is proved by the fact that it is presupposed alike in the assumed equality or inequality of any things whatsoever that can occupy space.

The only other point in Mr. Russell's book on which I desire to touch is the possibility of non-Euclidean spaces. Mr Russell agrees 'with Helmholtz in thinking the distinction between Euclidean and non-Euclidean spaces empirical' (p. 73). His arguments in favour of this contention seem to involve a considerable knowledge of mathematics, and yet his result is philosophical. Philosophers therefore would seem to be placed in an awkward dilemma: either they must accept the result merely on the author's authority—a proceeding not generally to be recommended in philosophy; or else they must be liable to be told that their criticisms are vitiated by mere mistakes in mathematics. In view of this dilemma, I shall only venture to mention some points which make Mr. Russell's arguments appear to me to be in-

conclusive. A fuller explanation of these points might, perhaps, make Mr. Russell's work more useful for philosophy. As it is it seems to be too mathematical for philosophers, even if it is not also too philosophical for mathematicians.

The first point, on which I think a fuller explanation would be desirable, may be raised in connexion with the argument on page 85. Mr. Russell here asserts that 'There is no qualitatively similar unit in the three kinds of space, by which quantitative comparison can be effected'. 'A debt of £300' he goes on 'may be represented as the asset of – £300, and the height of the Eiffel Tower is + 300 metres; but it does not follow that the two are quantitatively comparable.' This analogy seems to me at least unfortunate. For though – £300 is not quantitatively comparable with + 300 metres, yet, in order that – £300 may have any meaning at all (and Mr. Russell has admitted that one measure of curvature may be regarded as negative), there must be some conceivable positive quantity, £300 with which – £300 *is* quantitatively comparable, and what this is, in the case of a negative measure of curvature, Mr. Russell does not explain. His argument would seem rather to exclude the possibility of any such; and thus we should be left with a negative quantity which is a negative quantity of nothing. Moreover Mr. Russell repeatedly asserts that our actual space 'may have a very small space-constant' (p. 115), and in order that any meaning may be given to this assertion, it would seem that one space-constant must be quantitatively comparable with another. Unless one denotes a smaller, and the other a larger quantity of some common quality, none could be 'very small'. That two cannot be suffered 'to coexist in the same world' (p. 85) is surely utterly irrelevant, since we are quite well able to compare non-existent with existent magnitudes, provided only we know *of* what they are magnitudes.

My next point may perhaps involve nothing but a verbal error. It concerns the statement made on page 159, with reference to the geometry of non-congruent surfaces, that 'The fundamental formula, that for the length of an infinitesimal arc, is only obtained on the assumption that such an arc may be treated as a straight line, and that Euclidean Plane Geometry may be applied in the immediate neighbourhood of any point'. But on page 19, where Mr. Russell is explaining how we can find a 'sense of the measure of curvature in which it can be extended to space,' it appears that the formula given involves a reference to 'small arcs'. Now if by 'small' is here meant the same as by 'infinitesimal' in the former passage, it would seem either (1) that in any space which is defined by means of this formula 'Euclidean Plane Geometry may be applied in the immediate neighbourhood of any point,' or else (2) that on page 159 'the Plane Geometry of *any* congruent space' should be substituted for Euclidean Plane Geometry. The former alternative would seem to contradict Mr.

Russell's assertion of the qualitative dissimilarity of Euclidean and non-Euclidean spaces.

Again I find a difficulty in what seems to be implied on page 111, in the argument against M. Delboeuf, that in non-Euclidean spaces the space-constant may have a definite ratio to other magnitudes in the same space. If this is the case, it would seem it must be possible to measure the magnitude of the space-constant against other magnitudes in the same space; and measurement, as Mr. Russell often tells us, presupposes the straight line. But *the* straight line in any space means not that which is in common between Euclidean and non-Euclidean spaces, but *the* straight line of that space; and hence we should be measuring our space-constant by means of that which presupposes it. Or else, if by the straight line presupposed in measurement is meant the common quality of Euclidean and non-Euclidean straight lines it would seem that we could only use it in measurement if the things measured *are* nothing but a certain quantity of it; but in that case the space-constant of one space would differ only quantitatively from that of another, and there seems no room for the qualitative difference between spaces which Mr. Russell asserts to be the only one.

The conclusion which suggests itself to me from these considerations, is that all spatial magnitudes can only be regarded as magnitudes of some one quality. If we are to allow that the straight line has two qualities, one that is in common between Euclidean and non-Euclidean spaces, and another that is found in any given non-Euclidean space, then it seems that measurement must be impossible in such a space, since we have two *measures* of magnitude, which are consequently not comparable *inter se*. Measurement seems to presuppose only one measure of magnitude, and hence the truth of Euclid would be involved in the possibility of measurement, and so would be *a priori* in the same sense as the axiom of 'Free Mobility': since 'in Metageometry we have, while in Euclid we have not, a standard of comparison involved in the nature of our space as a whole' (p. 111). That the axiom of parallels is logically independent of the other axioms would seem to make nothing against this argument, since, if Mr. Russell's three *a priori* axioms differ from one another at all, they likewise must be logically independent of one another, in the sense that some part, at least, of one may be denied, without compelling us, on pain of contradiction, to deny the others also.

G. E. Moore.

Lectures and Essays on Natural Theology and Ethics. By WILLIAM WALLACE, late Fellow of Merton College and Whyte's Professor of Moral Philosophy in the University of Oxford. Oxford: At the Clarendon Press, 1898. Pp. xi., 566.

IN Prof. Wallace the University of Oxford has lost one who was on the whole perhaps the most brilliant and distinguished (if not the most widely influential) teacher of Philosophy who has occupied a chair among us since the death of Prof. Green. Up to the time of his death he had published only the Prolegomena to Hegel's Logic (in two forms) and an Introduction to Hegel's *Philosophy of Mind.* Although he exhibited extraordinary activity as a Professor, continually producing quite new and original courses of Lectures, most of these Lectures were usually unwritten, and the present volume probably completes the tale of his permanent contributions to philosophical literature. It consists of a course of Gifford Lectures on Natural Theology, a series of Essays on Moral Philosophy, and a few miscellaneous reviews. The feeling with which most students—even those in general sympathy with his point of view—will probably rise from the perusal of the volume will be one of immense admiration at the literary perfection of the writing and the power of the man combined with disappointment at their actual contribution to philosophical thought. Such a disappointment is probably not the result of accident: it is not due to the writer's failure to express his own thought or to the sad and sudden termination of his laborious life. It is the necessary outcome of a philosophical position which could hardly find a better or fuller expression than it does in this volume.

Prof. Wallace was commonly known as a Hegelian. But it is rather the Hegelian frame of mind than the Hegelian dogmas which the reader will encounter in this book. It is singularly free from technicalities, from all that the profane call "jargon". It is rarely that he rises (or falls) into the commonplaces of Hegelian rhetoric. He is moreover singularly catholic in his appreciation of other thinkers. He is bent on finding a meaning in great writers whose line of thought is usually considered to be least in harmony with his own. He can appreciate Leibnitz as well as Spinoza, Lotze as well as Hegel. He does not regard the English philosophers as mere instructive targets for their German critics, nor does he assume that a philosopher is necessarily contemptible because he was also a Bishop. He can even mention the name of Mr. Spencer without insult, almost without contempt. Not unnaturally the Master of Balliol who prefaces the volume with an admirable biographical notice finds him "too sympathetic". His reviews of Lotze and Nietzsche are admirable examples of this quality.

Up to a certain point nobody could better represent the Hegelian attitude of mind. Every historical system of Philosophy is represented as a necessary but one-sided tendency. In all

systems, schools, dogmas, tendencies, there are elements of truth, but all have in them inherent defects, limitations, one-sidednesses which necessarily lead on to some other, it may be opposite, development which equally in turn has to be transcended. Nowhere in the history of Philosophy can the searcher after truth find a bit of solid ground on which the sole of his foot may rest. It is not merely that no one system can be accepted as a whole, but no truth is so well established that it may not easily degenerate into an error calling for fresh protest. Everywhere in the extremely learned pieces of criticism of which the book is largely made up, we encounter (under Prof. Wallace's guidance) nothing but phases, tendencies, aspects. So subtle is the essence which alone this attitude of mind finds it possible to distil from the whole process that it can hardly be put into words at all. It can only be suggested or hinted at by the criticism of other people's mistakes. Truth becomes rather an escape from conflicting errors than any positive possession. Idealism becomes a temper of mind rather than a creed—a temper full of faith in an ultimate meaning in the Universe but scarcely ever able to say articulately even in part what that meaning is, unless by pointing to some historical system, social or religious, as a symbol of the reality beyond—but yet a symbol which the philosopher must not suffer himself to take too seriously, for fear he should become even as the vulgar —a mere Materialist, a mere Theologian or (lowest depth of all) a mere "subjective Idealist". Philosophy so understood tends to become not so much positive thought as a kind of enlightened disillusionment, which will be earnest and reverential (as it was with Wallace) or cynical and flippant according to the temper of the individual student, but which is in either case equally incapable of affording that light and help in dealing with the practical problems of duty and of faith for which some simple souls are still in the habit of looking to Philosophy and Philosophers.

All this is "Hegelian" enough: at least it is one side of Hegelianism: but in Prof. Wallace this attitude of mind is carried so far as almost to destroy Hegelianism. The positive dogmas of Hegelianism seem to command little more respect than any other dogmas. The jubilant tone with which the more constructive Hegelian proclaims that the eternal problem of the One and the Many has at last received its perfect and final solution is conspicuously absent. If we hear a good deal about "Religion," there is no suggestion that a way has at last been found by which the philosopher may identify himself with the dogmas and the worship of traditional Christianity, or on the other hand that any philosophic truth has been discovered which will take its place. If we hear a good deal about "the State," we are not taught to assume that any actual system of Church and State (the Prussian of 1820 or the British of to-day), any actual programme of political or social regeneration, can claim the enthusiastic and undivided allegiance which is claimed by those who think they

have really heard what the Idea (if I may be allowed to use a metaphor) has to say at least to the present generation of Germans or Englishmen. Even where Wallace does venture to express a thought which is not merely a criticism or an interpretation, he seems to be oppressed by a consciousness that even the least dogmatic of dogmas are destined to be swept away by the never ceasing dialectical movement. Even Hegelianism, even the last word that the last and least dogmatic prophet of Hegelianism may have uttered, is destined to be "transcended"—to be transcended so soon that it really seems hardly worth while to utter it.

The result of this attitude of mind is that the Gifford Lectures on Natural Religion resemble rather a series of "Pensées" or a "Journal Intime" than a systematic treatise; they would positively gain in effectiveness if their discontinuity were marked by occasional rows of stars. It is scarcely possible to exaggerate their literary brilliancy, their penetration and suggestiveness, or the impression they give of the power, the imagination, the digested learning of the man. They often remind one of Amiel; yet, with a stronger head and a stronger character than Amiel's, the rugged Scotchman lacks the pathetic lovableness of the ineffectual Genevan Professor. Wallace's thought too breathes a profound melancholy; but he is too strong to appeal for our sympathy.

Although averse to positive conclusions, it must not be supposed that Wallace shrunk from facing problems: he was not the man to take refuge in the subterfuges of metaphysical rhetoric. He saw that the issue that the plain man has to face "God or no God" was not to be evaded by vague protests against an "anthropomorphic deity" on the one hand and vague talk about an underlying Unity on the other. He puts the problem, and yet it is doubtful whether even in his own mind he gives a consistent and unvarying answer to it. We all know that among those who (whether they call themselves Hegelians or not) are content to use the language of Hegelianism upon the central problems of religious thought, there are to be found those who mean by that language much the same as the plain man means when he thinks of God as "a person or a spirit," and others who, ridiculing the idea of any other self-consciousness in the Universe besides the spirit of man, mean by "the Absolute" simply Nature as Nature must needs be understood by any one who knows what Metaphysic means. Wallace clearly belonged to neither of these classes. He attempted to steer a course midway between the two tendencies. If God was not to him a Person, he was not exactly a thing to be spoken of in the neuter. But beyond this it is scarcely possible to say much. Our author does little to help those who find such a position difficult or unintelligible. There is a continual oscillation between the opposite tendencies. God is not a cause but he is "the life and thought and spirit of all causes," and yet there are things in the book which make us doubt whether "spirit" is to

be taken seriously. There is the usual protest against thinking of God as "personal" coupled with the admission that he is "more than a person": the usual protest against thinking of him as moral or good, and yet there is always present a vague tendency to treat God as having something to do with the moral ideal and as a being capable of inspiring the aspiration and the effort of moral beings. In short Wallace probably felt the necessity of genuine Theism and its difficulties with about equal force. The lectures are full of interesting things about Theology and Religion, but it is to be feared that any one who goes to them with the expectation of finding any suggestions as to why he should believe in God and what he should believe about him will come away disappointed. Wallace would have ridiculed Mr. Spencer's worship of the Unknowable. All that we know would to Wallace be in a sense knowledge of God, since God is all, but it may be doubted whether in point of moral or spiritual value or indeed of speculative satisfaction, there is very much difference between the worship of the Unknowable and the worship of the All.

In the ethical Essays again we find chiefly criticism, appreciation, distinctions, essays on the meaning of words. They are full of interest and of varied learning (though it is strange that so learned a writer should think that a "man of religion" in Chaucer means one in holy orders). Everywhere valuable hints and suggestions: nowhere a connected argument or line of thought. Scarcely anywhere do we find any articulate answer to any of the really difficult problems about which Moral Philosophers have been wont to busy themselves. One of the most characteristic, if one of the least satisfactory of these Essays is on "The Ethics of Socialism". Prof. Wallace insists on regarding Socialism as a vague tendency to increase the interference of the State with the individual: not as a scheme for righting a definite social injustice by a definite change of economical organisation. With such a conception of Socialism we can hardly expect the writer to come to close quarters with it. But yet here is a subject surely on which it would seem the philosopher ought to be able to offer some guidance to the practical man. To tell us that some socialists do not appreciate the "organic" nature of Society does not help us much. There is in short no discussion at all as to whether the thing is right or wrong. The philosopher's business is, it would seem, to see which way the stream of tendency is going. "And to follow it" the hasty reader may be disposed to conclude; but no! "The true attitude towards this movement is neither to ban or to bless it." The reader who is not in love with Wallace's line of thought cannot help asking himself whether it is not its tendency to make inevitable a similar attitude towards all philosophies, all creeds, all causes, all schemes of action. "Not to bless or to ban anything in heaven or earth" —unless indeed we ban the crude "popular" philosophies which suggest that some things ought to be banned and others blessed— is that really all that Philosophy has to teach us? No wonder

that with such a view the writer should pronounce that "the common politician is always vulgar". But it is rarely that Wallace lapses into the arrogance so common among (shall I say?) the "common philosophers" nurtured in his School. He has reminded us indeed that the philosopher is after all also a man, and this book is full of evidence that in him at least the philosopher had not extinguished the humanity of a very noble nature. But has the philosopher nothing to say to the man? It would seem not, according to the present philosopher's teaching. It is strange that one who was so keenly alive to the connexion between the teaching of philosophers and the practical tendencies of their age, between individual character and philosophic creed, should recommend so impotent an attitude towards both the intellectual and the practical problems of his age. That perhaps is one of the necessary inconveniences of living in an age in which Philosophy has out-lived the dreams and illusions of her youth.

H. Rashdall.

The Philosophy of Greece Considered in Relation to the Character and History of Its People. By Alfred William Benn. London: Grant Richards, 1898. Pp. x., 308.

Mr. Benn's present volume has all the stimulating quality of his *Greek Philosophers*. It presents the same distinctive view of the factors of Greek thought. The difference is that while the geographical, political and religious circumstances of Greek antiquity are brought more systematically into view, references to modern thought are as far as possible avoided. The result has been that by far the greatest space is given to the formative period of Greek philosophy, down to the death of Socrates; Plato, Aristotle and the post-Aristotelian schools getting only the last third of the volume.

In his treatment of the early thinkers, Mr. Benn has evidently kept his eye on the many important contributions to their history which have appeared since the publication of his former work. By notes and slight indications in the text he is able to make clear the view that he deliberately takes. No attentive reader is in danger of supposing that he has unknowingly passed over views adverse to his own. At the same time he displays, along with the most extensive knowledge, a facility in generalising which, like the plan itself, reminds us of Buckle. The parallel is indeed almost too obvious. As with Buckle, though we cannot complain that he is ignorant of the facts, we may occasionally desire that rather more account should be taken of "negative instances".

To point out cases of this kind does not need knowledge equal to the author's. It will probably strike even the general reader

as paradoxical when Mr. Benn talks about "such a nest of bigotry as Athens". And the objection presents itself, if philosophers, as Mr. Benn says, were everywhere else in Greece freer than at Athens, why were they all eager to go there and gain hearers or become founders of schools? At the time when mediæval was giving way to modern philosophy, we do not observe a rush of original thinkers from all parts of Europe to Madrid, though Spain was then politically predominant.

If Mr. Benn does not follow Grote in his general vindication of the Athenian democracy, he follows him in his defence of the Sophists. To the principal Sophists he assigns a high place as original thinkers, and more historical influence than is usually allowed. He divides them into the two classes of "humanists" and "physiocrats". In the former class he places Protagoras and Gorgias; in the latter, Hippias and Prodicus. The Stoic rule of "following nature" he would trace partly to those among the Sophists who set up "natural law" as a standard. Here, however, he recognises the much greater influence of Heraclitus. The contention of the sceptical Academy, that probable rules of human conduct are attainable without a settled physics or metaphysics, he finds to be derived through Plato from "the great humanist Sophists". Epicureanism, he thinks, "can only be rightly estimated as a halting compromise between the opposing tendencies inherited from Protagoras and Hippias".

To go back to the beginning. Mr. Benn finds that the characteristics of the Hellenic—or, more exactly, of the Ionic—spirit, were expressed in a general view of the world marked by the three principles of circumscription or limitation, antithesis, and mediation. These he traces through the early philosophical explanations of the universe. Before the stage of philosophising was reached, the general view was implicit in the ideal of "Sophrosyne," or "self-knowledge and self-control," which already ruled the life and art of the Ionians. Both the æsthetic and practical ideal and the speculative thought were aristocratic products. The philosophic movement indeed was aided by the beginnings of popular government; but it was less aided by the religious revival—essentially a democratic movement—which followed. The next phase of the transitional period, *viz.*, the Ionian emigration to Italy, due to the pressure of Asiatic conquest, brought philosophy into new conditions. The special characteristics of the "Italic" series of thinkers are here traced in an interesting way to geographical circumstance. The "mediating" cause—to use one of Mr. Benn's own expressions—is the increased use which navigators and colonists found for mathematical science. This reacted on the philosophy of the Italiote Ionians, giving it a bias towards some immutable principle, as opposed to a principle of change. The explanation from race as against circumstance would of course be to suppose a reaction from the Dorian spirit with its tenser "harmony," but Mr. Benn is inclined to depreciate

the Dorians. On the other hand, he does not dwell on the fact that during the historic period they were the representatives of the aristocratic (or oligarchic) principle against the more democratic Ionians. To keep this well in view, with all its implications, might have redressed the balance of judgment on the Athenian democracy.

It would be interesting to follow Mr. Benn's account of the later physical thinkers who were on the way to atomism ("The Minute Philosophers") and of the sophistic system of education ("The Diffusion of Culture"); but limits of space forbid, and room must be found for a word on his estimates of Plato and Aristotle. Plato he describes (with a reference to Maurice's *Ancient Philosophy*) as "the most practical of all philosophers". Aristotle, on the contrary, he regards as a man of "exclusively theoretic endowment". This, he goes on to say, "limited his vision to the surface of things," and was the source of his weakness in physics. But was Democritus, to whose physical insight Mr. Benn does justice, less of a pure theorist or more of a practical reformer than Aristotle? Elsewhere, indeed, Mr. Benn suggests a more plausible explanation of Aristotle's failure to adopt the most penetrating physical views of the early thinkers. What he disliked in them was their appearance of paradox. In his own explanation of the universe, he desired to recognise a portion of truth in the common-sense view of things. But is this really the character of the scientific investigator of nature untouched by practical interests? Is it not rather to be connected with Aristotle's pre-eminently successful cultivation of the humanistic sciences; where, as the philosopher himself remarks, the highest degree of scientific precision is unattainable, and the empirical judgments of mankind have to be taken into account by any one who would attain such scientific truth as is possible? And perhaps there is not quite so much difference as Mr. Benn tries to make out between Aristotle's and Plato's view of the theoretic life. Plato, too, thought this in itself the happiest; his ideal sage descends from it not out of absolute preference, but under compulsion or from a sense of duty. Of course Mr. Benn's distinction is broadly true, that Plato's was a reforming mind with extraordinary glimpses into the distant future, while Aristotle was above all a great systematiser, whose outlook was towards political life as it had hitherto been lived in historic Greece. Exactly for that reason he is often with some justice described as a more typical representative of the Greek spirit.

The volume breaks off rather abruptly with no more than two or three pages on the last period of what was after all, as Mr. Benn admits, essentially Greek thought, although it was carried forward by men of various races. This is the more to be regretted because in his *Greek Philosophers* he had a good chapter on the distinctive contribution made by Plotinus to philosophy. And his own principle of "antithesis" seemed to require some account of the new spiritualistic movement after the sketch given of the

Stoic and Epicurean naturalism. The little that is now said hardly agrees with some remarks in the earlier book on the detachment of the Neo-Platonists from the life of their time. "That all things proceed from the One, and aspire to be reabsorbed into the One," Mr. Benn says of Plotinus, "is the master-thought of his philosophy; and in that thought the abstract unity to which Rome had ever tended—towards which she still tends—found its triumphant metaphysical expression." As a parallel, the historian of modern thought might equally well assert that Spinoza's doctrine of Substance was a metaphysical formulation of the unity of the Dutch Republic; in the place of which Leibniz put a multiplicity of monads because he had observed the "particularist" tendencies of the German States within the Empire. The true reason, indeed, for leaving off at this point of the history seems to be that the method of direct reference to geographical or political circumstance is no longer applicable. Circumstance tells, no doubt, in the early stages. Later, it is mainly the philosophical tradition that tells.

T. WHITTAKER.

VI.—NEW BOOKS.

An Introductory Logic. By James Edwin Creighton, Sage Professor of Logic and Metaphysics in Cornell University. New York: The Macmillan Co. London: Macmillan & Co., 1898. Pp. xiv., 392.

This work is intended as a text-book for college students and grew out of the author's lectures in Cornell University. It is arranged in three parts, preceded by an introduction treating of the general standpoint of Logic, and of its history. The historical sketch, especially as regards the Greeks, seems too trite and general to be of definite service to the student. A more pointed account either of early Greek thought or of Aristotle would surely have filled the space more usefully. The three parts, which form the body of the work, deal respectively with the Syllogism, with Induction, and with "The Nature of Thought". Under the two earlier heads a full account is given of the traditional formal logic of the syllogism, complete with Euler's circles and mnemonic lines; and of what may now perhaps be called the traditional formal logic of induction, including Mill's "Methods," Analogy, Hypothesis, and a chapter on the "Fallacies of Inductive Reasoning". Part iii., under the heading "Nature of Thought," is intended to introduce the student to the philosophy of Logic as treated by Bradley, Sigwart and their followers. So that here the field is retraversed, and the distinctions which had been provisionally accepted are reanalysed from the standpoint of identity in difference and of the ultimate unity of knowledge. The author in his preface defends this attempt to bring the philosophy of Logic before students in an elementary course; and one's view of its advisability will probably determine one's attitude to his work. He points out, what seems worth considering, that psychology has ceased to be a "philosophy of mind," and that thus a fresh demand seems to be made upon Logic for the investigation of intelligence as cognitive. Ultimately, the elements which here find themselves between the same covers will hardly form an organic whole. But so long as it cannot be said that philosophical Logic has provided itself with a teachable body of doctrine, it may be well to lay before the student, as is here done, the sort of tradition which he might have gathered from Jevons and Bain, together with indications of the points at which it seems to break down. Prof. Creighton writes sensibly and temperately, and introduces, by cautions and anticipations in the body of his work, the greatest amount of unity which is compatible with his plan. It is not quite a happy family, however, in which we find Mr. Bradley's "A to the right of B," etc., introduced under the heading of "Irregular Arguments," along with Enthymeme, Sorites and the like. And there is an awkward discrepancy in the use of the term opposites on page 52 for contraries, and on page 72 for contradictories. There are other cases of laxity of terminology, such as the use of Definition as a class name covering Division. If we are to teach the old Logic, should we not be very precise with it?

B. Bosanquet.

The Gospel According to Darwin. By W. Hutchinson. Chicago: Open Court Publishing Co., 1898. Pp. xi., 241. Price, $1.50; 6s.

In this book we have an attempt, by a physician of wide experience, "to get a bird's-eye view of a few of the influences affecting human hope and human happiness from the standpoint of that view of (and attitude towards) the universe which is best expressed by the term Darwinism". It is, of course, impossible to work out a system of ethics, naturalistic or other in 250 12mo pages. But the author writes his ethics at first hand; and, despite omissions and occasional inconsistencies, his book well repays reading and study.

In chapter i. it is shown that the 'fifth gospel' has its own answer to the problems of its forerunners. The existence of evil is replaced by progress through conflict; morality is derived from the family affections; personal immortality is given up for an immortality of our physical constitution, and of our influence, so far as this is for good. Chapter ii. argues that the good—sunlight, life, love—is omnipotent; chapter iii., that our virtues are older than our vices or ourselves, and that instinct, the crystallised experience of thousands of generations, is of the very highest value as a guide to conduct. Chapter iv. maintains that death is not opposed to life, does not involve waste of energy, and is not a painful ordeal. Chapter v. works out the question of eternal life: all that is true, good, brave and virtuous becomes part of the framework of the universe; all that is base falls by its own weight. Chapter vi., 'Love as a Factor in Evolution,' sets the arguments of Darwin, Krapotkine and Arthur Thomson against those of Huxley. Chapter vii. enforces Mr. Kipling's doctrine, that courage is the first virtue; and chapter viii. emphasises the strength of beauty. Chapters ix. and x. are sociological: they discuss the benefits of overpopulation, the economics of prostitution, and the duty of reproduction. Chapter xi. sets forth the uses and value of pain, the 'mother of the mind as muscle is its father'. Chapter xii. teaches that "joy is not only perfectly legitimate, but one of the most wholesome and elevating aims which can be found. As an incentive to vigorous, healthy development, both moral and physical, it takes its place beside the other great motive impulses, love, courage and hunger."

Truth and Error: or the Science of Intellection. By J. W. Powell. Chicago: Open Court Publishing Co., 1898. Pp. 428. Price, $1.75; 8s.

On its constructive side, this work is an attempt to work out a hylozoistic metaphysics, with especial reference to the resulting epistemology. At the same time it carries on a continual polemic against the "reifications of the void" which vitiate idealism and materialism alike. In both regards, it is the work of an amateur in philosophy. The author's scientific reputation will, doubtless, bring him readers; and the reader will find some compensation for the difficulties of a strange terminology and condensed style in the shrewdness and insight of many incidental remarks and criticisms. As metaphysics or theory of knowledge the contents of the book are worthless.

The fundamental thesis is that the universe is 'pentalogic'. Matter has five constitutive properties: number, space, motion, time and judgment. These are real, not artificial; founded in nature, not creations of the mind. Correlated with them are five essentials (absolute) and five variables (relative). All alike are referable to five categories: kinds, forms, forces, causations, concepts. Then come the systems of detail:

the five kinds of particles, of natural bodies, of animal principles, of senses, of faculties, of elements in the sensation, etc.,—to the number of twenty or more. The relationships between series and series are established by an undefined 'development,' by "affinity as choice," by 'organisation,' etc.

The work is dedicated to Prof. L. F. Ward, to whose elaborate account of its contents in *Science* (27th January, 1899) reference may here be made.

Footnotes to Evolution: a Series of Popular Addresses on the Evolution of Life. By D. S. Jordan, E. G. Conklin, F. M. McFarland and J. P. Smith. New York: D. Appleton & Co., 1898. Pp. xviii., 392.

Six of President Jordan's essays call for brief mention here. Those on the evolution of mind, and on the struggle for realities, set forth the author's views of genetic psychology. Mind is defined as the sum of the operations of the nervous system, or of the similar operations occurring in organisms without specialised nerve fibres or cells. Its basis is irritability: thus the point of growth in plants is the seat of the plant mind. Its type is reflex action; consciousness is not necessarily implied in it. At a certain stage "arises the necessity for choice as a function of mind". Attention is selection; suppression of undesired action is accomplished by the will. Nothing is said of the mechanics of this development, though we are warned against positing an ego, an entity apart from organisation. But, surely, the problem of attention is the central problem of a genetic, as of every other psychology; it is not explained by a mere mention of the 'necessity' for its origination.

The papers on degeneration, on hereditary insufficiency, and on the woman of evolution and the woman of pessimism, discuss sociological topics; that on the stability of truth meets the arguments of the Marquis of Salisbury, Mr. Balfour, and Prof. Haeckel. The remaining nine addresses are concerned with biological matters.

The Problems of Philosophy: An Introduction to the Study of Philosophy. By J. G. Hibben. New York: Chas. Scribner's Sons, 1898. Pp. vi., 203.

Prof. Hibben aims, in this little book, to "give a simple statement of the various schools of philosophy, with the salient features of their teachings, and to indicate the chief points at issue in reference to controverted questions: . . . to furnish the student who is beginning the study of philosophy a bird's-eye view of the general philosophical territory". After a brief plea for the study of philosophy at large, and an enumeration of the chief philosophical problems, come eight special chapters, dealing with Being (ontology), the world (cosmology), the mind (psychology), knowledge (epistemology), reason (logic), conscience (ethics), political obligation (political science), and the sense of beauty (æsthetics), respectively.

The author has written shortly, simply, and in an attractive literary style. His work will prove of high value to the amateur of philosophy—the 'educated' reader—and to the undergraduate who finds himself upon the threshold of a philosophical curriculum. In a future edition it would be well to supply a few selected references for further reading, and to rearrange the chapters in such a way as to bring out the interrelation of the various philosophical disciplines.

Matter, Energy, Force and Work: a Plain Presentation of Fundamental Physical Concepts and of the Vortex-atom and Other Theories. By S. W. Holman. New York and London: Macmillan & Co., 1898. Pp. xiv., 257. Price, $2.50.

The object of this excellent little book is to "present in a plain and logical manner some fundamental ideas and definitions of physics; . . . to proceed in an orderly manner to develop the concepts and definitions". The author has been most successful in his attempt; and his work may be recommended both to physicists and to metaphysicians. That the scientific man may not rashly venture on philosophical territory has been abundantly proved by certain recent essays in epistemology. It is not less important that the philosopher should have a clear understanding of the concepts and theories with which he is called upon to deal in his endeavour to harmonise the standpoints and hypotheses of the special sciences.

The book falls into two parts. Part i. includes chapters on substance and matter, motion, energy, forms of energy, force, kinetic energy, force measurement, work, and potential energy; part ii., chapters on the function of theory and hypothesis, the kinetic theory of gases, Le Sage's theory of gravitation, the vortex-atom theory, and the nature of energy and matter.

Mathematical Essays and Recreations. By H. Schubert. Translated by T. J. M'Cormack. Chicago: Open Court Publishing Co., 1898. Pp. 149. Price, $1.00; 5s.

A collection of six essays on mathematical subjects. The first, on the notion and definition of number, defines counting as (1) regarding things as the same in kind; (2) associating other things to them, ordinally, accurately and singly; and (3) expressing the result of such association (number) by a conventional sign. The second, on monism in arithmetic, explains the introduction of zero, negative, fractional, irrational, imaginary and complex numbers by appeal to a psychological law, the 'principle of no exception'. The third, on the nature of mathematical knowledge, discusses the conservatism, developmental progression, and self-sufficiency of mathematical thought. The fifth, on the fourth dimension, deals at length with the spiritualism of Zoellner and Ulrici. The remaining two are entitled "The Magic Square" and "The Squaring of the Circle". The volume is interesting throughout, and the translation well done.

The Elements of Sociology: a Text-book for Colleges and Schools. By F. H. Giddings. New York and London: Macmillan & Co., 1898. Pp. xi., 353. Price, $1.10.

Prof. Giddings' *Elements* is in part a redaction of his larger book, *The Principles of Sociology*, and in part a further development of the working hypotheses there adopted. The work is clearly written, and furnishes a serviceable educational tool to those teachers who adopt the author's sociological standpoint. Whether this standpoint is at present securely enough established to justify the introduction of the book into the curricula of colleges, and more especially of schools, is a matter for the expert to decide; the lay reader inclines to doubt. And the doubt is not removed by a perusal of the new matter dealing with the analysis of the social mind (sympathetic like-mindedness and impulsive social action, formal like-mindedness, tradition and conformity, rational like-mindedness, public opinion and social values), interesting as the analysis is.

Suggestions toward an Applied Science of Sociology. By E. P. Payson. New York and London: G. P. Putnam's Sons, 1898. Pp. ix., 237.

Mr. Payson's essay is a plea for a 'physical' sociology. "It is submitted that, with no servility to materialist or churchman, the physical nature and activities of man's physical body may be studied, and the true progressive methods of dealing with these attributes, characteristics and facts of humanity be gradually attained." Criminal law, public education and public philanthropy must combine in prescribing a physical treatment of man in communities, with a view (1) of eliminating the evidently vicious from the environment of the normal citizen; (2) of placing the vicious under healthful repression; and (3) of providing, especially for the young, a healthful environment in respect of food, shelter and occupation.

L'Individualisation de la Peine: Etude de Criminalité Sociale. Par R. Saleilles. Paris: Félix Alcan, 1898. Pp. 281.

This book is the first volume of a general library of social science which is now being issued under the editorship of the general secretary of the *Collége libre des Sciences sociales.* The book is a reproduction of the lectures delivered by M. Saleilles at the *Collége libre des Sciences sociales* and is quite free from all legal technicalities. On a great many fundamental points M. Saleilles is in accordance with the Italian school of criminologists. Where he differs from them is in matters of detail. He accepts the view of Prof. Ferri and others, that penal law exists primarily for purposes of social defence. But he does not consider that this definition of penal law is quite exhaustive. His conception of penal law is that it is a system of social defence in harmony with the idea of justice. In this way M. Saleilles considers that he gives greater completeness and accuracy to the definition of penal law. As long as law derives its sanction from public opinion it is evident that it must in the main be drawn up so as to harmonise with the idea of justice which prevails in the community where it is in operation. Unless penal law has the concurrence of the community behind it, it is practically a dead letter, and penal law will not be supported by the community unless it is in accordance with the idea of justice as it is conceived by the bulk of the population. It is probable that Italian criminologists would find no fault with M. Saleilles' extension of their definition of penal law, except perhaps to say that it was superfluous. M. Saleilles describes crime as an attack upon the established legal order of society, and the method of dealing with those who commit crime may take two forms. In the first place we may look solely at the nature of the crime which has been committed, and determine the amount of punishment by the character of the offence. If this is our attitude the question to be decided is the exact nature of the crime. When this point has been reached the next step to take is to award the precise amount of punishment attached to that particular offence. In all these arrangements the offender, the person who committed the offence, remains completely in the background. It is the character of the offence and not the character of the offender which occupies the attention of the penal law. In meting out punishment to the offender, it is what he has done not what he is which the law has in view; its object is the same as that of the man in the play, "to give one good kick back," irrespective of the result of that kick on the individual who receives it or on society at large. If the value of a system is to be judged by its results it must be admitted

that the operation of this retributive method is not very satisfactory. As M. Saleilles very truly points out, offenders subjected to retributive treatment are not deterred by it from repeating the offence. It does not cure them. On the contrary, it hardens them and makes them more dangerous to society than they were before. Further, there is no proof whatever that the retributive principle checks crime. It is asserted that it does. But no facts whatever are brought forward in proof of this assertion. The assertion is a mere hypothesis resting upon no solid foundation. It is also asserted that retributive punishment ensures respect for the law. But it is impossible to prove that it does so. It is a mere assumption. Hence the discredit into which the principle of retributive justice has fallen among almost all those who have watched it in actual operation. Retributive justice is a purely mechanical and mathematical process : it secures no reparation for the past and it accomplishes no result in the future. According to M. Saleilles the nature of punishment must be determined by its end. It must be adapted to the character and circumstances of the individual. It is only in this way that punishment can be made effective. Its object must be to prevent the individual, and through him the community as a whole, from repeating the offence. It is only by the individualisation of punishment that this end can be attained. But how is punishment to be individualised ? According to M. Saleilles it can be individualised partly by legislative, partly by judicial, and partly by administrative methods. The object of individualisation is to adapt the punishment to the offender and not merely to the nature of the offence. The adaptation of punishment to the character of the offender must be on lines which will not bring this principle into collision with the idea of justice current in the community. In fact the practical application of an individualised system of punishment is the chief difficulty connected with it. The system is sound in theory but it has yet to be shown to what extent it can be applied in practice. I have no doubt that the individualisation of punishment is capable of practical application to a very considerable extent. M. Saleilles proposes several methods and some of them are more or less feasible, but we must wait for the appearance of his second volume on *Criminal Politics* to see how far his proposals can be carried into the sphere of law and administration. In the meantime, M. Saleilles' present work may be safely recommended as an admirable introduction to the philosophy of criminal law. He has made himself master of all the best that has been thought and said on the subject in recent years, and he has the valuable gift of lucid exposition.

L'Ame du Criminel. Par MAURICE DE FLEURY. Paris: Félix Alcan, 1898. Pp. 192.

The title of Dr. de Fleury's little volume hardly answers to its contents. More than one half of the book is devoted to an examination of the best means of dealing with the criminal population. Dr. de Fleury divides his work into three sections. The first treats of the brain and free will: the second of determinism and responsibility : the third of the repression and prevention of crime. An examination of the structure and functions of the brain leads the author to the conclusion that free will is an illusion. Human conduct is a product of heredity and environment. The treatment of the criminal population must be determined by this fact. The actual criminal code is based upon the idea of free will. But if the fundamental basis of the criminal code is false, it is impossible for the machinery of criminal law to deal effectively with the criminal. Strictly

speaking, the penal code should be recast and reconstituted in accordance with a different conception of the idea of justice. But Dr. de Fleury considers this fundamental change as impossible in existing circumstances. He thinks that the public mind is not prepared for it and that the reform of penal law must be made step by step. In this general statement he is no doubt correct. But when he proceeds to deal with the manner in which penal and penitentiary reform should be effected it is not so easy to agree with him. One of his proposals is that habitual criminals should be treated with greater severity. In a great many cases habitual criminals are people of unstable mental balance, feeble mentally and physically. These facts Dr. de Fleury repeatedly insists upon. Yet his proposals would have the effect of subjecting such persons to a regimen which would still further deteriorate them. In this condition they would be ultimately let loose upon society and would be more dangerous than ever. Penal reform cannot take this course. The true method of dealing with the habitual criminal or recidivist is to exclude him from society for a period which will cover the age at which criminal activity is at its height. In many instances this would be a long period. But during this period prison discipline should never be of such a severe character as to deteriorate him either in body or mind. It should be directed rather to improve him with a view to the fact that he will one day be a free citizen, for it is in the interests of society that he should not abuse his freedom when at last he gets it. In justice, however, to Dr. de Fleury, it must be mentioned that he has little faith in repression and intimidation whatever form they may take. With all modern students of the criminal population he considers that the true line of progress lies in removing the individual and social conditions which tend to produce crime. Crime springs from certain abnormal conditions in the individual and in his surroundings. Diminish the action of these conditions and you will at the same time diminish the amount of crime. Punishment does not affect these conditions: hence its failure to protect society against its criminal elements. Society can only be protected by individual and social amelioration. The struggle against crime is in reality a struggle against all those conditions in society which tend to degrade and deteriorate the individuals who compose it.

Ueber das Sollen und das Gute: eine begriffsanalytische Untersuchung. Von Fred Bon. Leipzig: Wilhelm Engelmann, 1898. Pp. iv., 188.

The scope of this book may be indicated in the words with which the author concludes his introduction: 'The road that I have taken is in my opinion the only one by which Ethics can be successfully rescued from the shifting ground of popular phraseology . . . and made into a separate science' (p. 18). If this claim is correct, the book is obviously of the first importance; and I propose therefore to examine the grounds by which Herr Bon attempts to justify it, although the greater part of his work consists of matter of which the bearing on this claim is only indirect.

Herr Bon expresses his grounds in the sentence immediately following that quoted above, 'Indeed,' he says, 'I venture to affirm, that hitherto no scientific Ethics has been possible and in the future too will not be possible, until we are clear about the question, *not what morality* (das Sittliche) *is, but what we will agree to call by that name*'. Herr Bon's contention is, in short, that the sole requisite for the establishment of a scientific Ethics is a definition of the words we are going to use, that is at the same time perfectly precise and perfectly arbitrary. He argues in

his introduction that the making of such definitions is the sole business of philosophy. 'Philosophy,' he says, 'can only do justice to her problem of the analysis of concepts by means of propositions which serve to explain the meanings of words, *i.e.*, in analytic judgments' (p. 15). And yet on the very preceding page, we have an account of the problem of philosophy which seems to be radically different from this; '. . . there is required,' says Herr Bon, 'a previous accurate analysis of the concept in question; *i.e.*, an exhibition of the experiences of earlier generations that are deposited in the concept and often partly forgotten, or at least unnoticed. And let us say again: This is exactly the method and problem by means of which philosophy is distinguished from the special sciences' (p. 14).

Now these two conceptions of the meaning of 'analysis of concepts,' as defining the problem of philosophy, seem to be not only inconsistent with one another, but also neither of them sufficient. On the second Herr Bon does not insist; indeed he does not seem to see how different it is from the first; and it may therefore be dismissed with the remark that what is 'deposited' in any given concept will, in many cases, be a false view of things that was taken by our ancestors, and not an 'experience' in the sense of something which truly represents the facts. This definition would therefore make it in many cases the business of philosophy to arrive at falsehoods which commended themselves to our ancestors. The other definition seems still more palpably absurd, since it would make philosophy consist in nothing but attaching a definite name to a definite idea, without any inquiry as to whether that idea represents a truth or a falsehood. Any falsehood, so Herr Bon's view implies, provided it be only precise enough, may be proclaimed for true by philosophy. Into this paradox he seems to have been driven by his very warm opposition to the view that it is the philosopher's business to assume a common meaning wherever a common name is used. But he does not seem to see that the real objection to this 'inductive' method is not that it uses one word for several different things, or, as Herr Bon would say, uses 'confused concepts' (the above quotations show that he does not observe the distinction between words and concepts), but that it fails to perceive that the things are different. Hence it might be not unfair to say that a large part of the problem of philosophy was 'sharply to contrast the different meanings' of one word, as Herr Bon recognises for a moment (p. 33); if we add to this that it must then go on to discover the synthetic relations between these different things meant. But it is then also plain that it is a proper question for philosophy 'what morality is' and not only 'what we will agree to call by that name,' the answer to the first question being the discovery of what different notions there are that can be called by that name, and if those notions are complex, whether the relations between their elements do truly hold.

Herr Bon's practice is better than his theory, but it is perhaps owing to his theory that he has not taken sufficient care to exhaust the notions which are involved in the ordinary loose talk about morality. He has, in fact, omitted to notice the only notion which really serves to distinguish Ethics from any other study. What this is *called* matters no more than Herr Bon thinks it matters. What is important is that there is a perfectly distinct meaning, of which he says not a word, that I should prefer to denote by the name 'good,' for the reason that that word, and the word 'ought,' seemed generally to be used with reference to it, though, no doubt, with a confused reference. Herr Bon's theory, if taken strictly, would make this criticism impertinent; since if the judgment, in which he declares 'You ought to do what is commanded you' (p. 24), were

really, as he says, an analytical judgment it would be simply equivalent to 'You are commanded what you are commanded'. This judgment, no doubt, is unexceptionable; but Herr Bon would hardly be satisfied that it expressed his meaning. If, then, as seems to be the case, his theory must be rejected, and the criticism is understood as applying to his practice, it amounts to saying that by 'You ought' something quite different from 'You are commanded' may be meant, and that this is something which Herr Bon nowhere mentions elsewhere in his book. It is in fact the notion which gives a meaning to the mention of 'true' and 'false' 'Ideals,' which Herr Bon afterwards rejects scornfully as phrases without meaning (p. 135). In short, there is a notion which gives a meaning to the questions, 'Is it true that this ought to be?' 'Is it true that this is good?' quite independent of what anybody thinks about the matter, or of what he desires or is commanded. Even if Herr Bon thinks there is no such notion, his theory, being false, will not entitle him to reject without discussion the possibility that there is.

G. E. Moore.

Criminalpsychologie. Von Dr. Hanns Gross. Graz: Leuschner & Lubensky, 1898. Pp. 722.

Dr. Gross's book is intended for judges and magistrates who have to try criminal cases. He considers it most essential in the interests of justice that public officials entrusted with the lives and liberties of so many people should possess an accurate knowledge of the operations of the human mind. In the first place they should know how their own minds work, then they must know the minds of the witnesses and finally the minds of the persons for trial. A knowledge of the general laws of mind must be supplemented by a special knowledge of the mental characteristics and peculiarities of the various classes who come before the criminal courts either as prisoners or witnesses. Dr. Gross attempts to some extent to supply this information. He deals with the mental characteristics of women and children and the value which is to be attached to their evidence as witnesses. He shows the effect of old age on the mental faculties and the allowances which must be made for it by judges and magistrates. The effects of illiteracy, ignorance, superstition, custom, mental hallucinations and illusions are also dealt with. He even wishes the judge to draw conclusions from the dress worn by the prisoner or the witness. Many of his remarks are interesting and instructive, although at times somewhat fanciful. On the whole the book is a valuable compendium of criminal psychology and is worth reading by those who have to deal with prisoners and witnesses in courts of justice.

La Psicologia dell' Immaginazione nella storia della filosofia. Per Luigi Ambrosi. Roma: Società editrice Dante Alighieri, 1898. Pp. xxxiv., 562.

Dr. Ambrosi has investigated rather more than fifty psychological doctrines, and has summarised the theories bearing on his subject with great clearness, endeavouring, so far as was possible, to maintain the chronological order and to show the development of one from another. He has thus prepared the way for a volume soon to appear, entitled *In the World of Phantasy: Its Phenomena, Its Laws, Its Mysteries*, which he characterises as "a voyage of discovery". Meanwhile he has given us a historical and critical account of the psychology of imagination from Democritus down to Frohschammer.

Beginning with a short chapter on primitive mythological conceptions

of imagination, Dr. Ambrosi next notices the Atomists, Plato and Aristotle. He points out that the Stoics, while regarding imagination as a synthetic activity, limited its functions to the reproduction of the data of sense, and that Plotinus first recognised it to be an intellectual function, and creative. After St. Augustine, St. Thomas and Dante, Descartes marks a new era by his psycho-physical view of imagination, and Spinoza takes a step backwards in regarding it as merely passive. Malebranche attempts to confine it within narrow limits and to regard it mainly as a source of error. Gassendi has the merit of breaking down the barriers between different faculties. There is not much to be said about Locke and Leibnitz, but with Wolff imagination takes its place as a separate branch of psychology, which no psychologist can venture to neglect. Wolff was the first who ventured "to confine within the limits of exact laws a faculty apparently so capricious" (p. 540).

So far the chronological order is maintained; but here a classification according to nationality becomes necessary, and Dr. Ambrosi turns first to the Italian philosophers. Vico laid the foundations of a psychology of collective imagination; Muratori, Soave and Galluppi regarded the subject from an ethical and practical standpoint; De Grazia's view was psychological, Rosmini's physiological, Gioberti's æsthetical. In a similar manner the author deals with the psychologists and philosophers of Scotland, England, France and Germany, ending with Wundt. Schopenhauer, Hartmann, and lastly, Frohschammer, of whom he writes: "While others have given us the metaphysic of the idea, of the will, of feeling, of consciousness, of the unconscious, he has attempted a metaphysic of imagination. The attempt has had a happy issue" (p. 559). This does not mean that Frohschammer's theory of an all-embracing world-phantasy, which is objective in its lower, and subjective in its higher forms, is to be accepted. Dr. Ambrosi indicates its weak points and remarks that no monistic system (dynamic monism is the phrase he prefers) can be founded on any one function of the mind. But he regards imagination as "a function which, perhaps more than any other, embraces the whole mental life" (p. 123). What he commends in Frohschammer's doctrine is the great importance attached by him to this "modest faculty mediating between the senses and the reason," which Schelling's æsthetic transformed into a true creative power (p. 364), and also the fact that his philosophy is based on a principle of activity. Throughout the book Dr. Ambrosi makes prominent his conviction that the human mind must be regarded as essentially personal and active, and vindicates the claims of imagination to consideration. Hence he sometimes appears to judge the authors whom he criticises not so much by the accuracy of their conclusions as by the place which they assign to imagination, or, in other words, the sense in which they use the word. *Die Phantasie als Grundprincip des Weltprocesses* was published in 1887. It is, possibly, because no writer since then has included so much under the terms "phantasy" or "imagination" that Dr. Ambrosi makes no reference to any more recent work. Having treated of imagination in mythology, psychology and metaphysics, he concludes with imagination in poetry, and gives an interesting review of the long poem *L'Imagination*, written by Jacques Delille amid the horrors of the French Revolution.

E. F. Stevenson.

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VII.—PHILOSOPHICAL PERIODICALS.

Philosophical Review. Vol. viii., No. 1. **J. G. Schurman.** 'Kant's Theory of the *a priori* Forms of Sense.' [If mathematical synthesis depends on perception, like all other synthesis, and yet is independent of empirical perception, its basis must be some pure or *a priori* perception. Kant asserts (not proves) that space and time constitute this basis. They are not innate ideas, but the immanent forms or functions of the faculty of perception. Geometry, the science of space, is thus true of things, not merely of ideas. The explanation of mathematics leads to phenomenalism. The *Æsthetic* parallels time and space; but there is no pure science of time. Kant's two time-axioms are analytic only. His two proofs (that the time-consciousness is prior to all perception of time-relations, and that it is indispensable to all experience) are inadequate. His subjectivistic conclusions fall therewith; but fall also on the positive ground that the real universe cannot be a universe of changeless existence.] **D. H. Blanchard.** 'Some Deterministic Implications of the Psychology of Attention.' [(1) Psychology of attention: Ribot, Stout. Attention "is the mental attitude of receptivity. Fixation of attention is the process of motor or vasomotor adjustment" accompanying receptivity, and "the feeling of effort is the reverberation in consciousness of this adjustment". Will "finds no occasion for exercise except through conflict". (2) Criticism of James' 'action in the line of greater resistance' and of Seth's indeterminism. Will "is not a faculty, but as much a psychic state as a sensation or an emotion". Attention, in its process of "interest, conflict, motor adjustment, selection through preferential interest, apperception or choice, and action" "explains all that there is to explain."] **A. H. Lloyd.** 'Time as a Datum of History.' [Time is not formal and self-existent; for that would mean the isolation of events from each other, the sanction of suddenness in things, the positive recognition of a controlling agency without, and the temporal character of the real and the spiritual. Time is "the factor in experience that, taken by itself, expresses at once the necessity (the past) and the opportunity (the future) that a world of related differences naturally affords". "Those who live do not live in time; they live time itself, they use time."] Reviews of Books. Summaries of Articles. Notices of New Books. Notes. **M. F. Washburn.** 'Recent Discussions of Imitation.' [Baldwin, Tarde.] **I. M. Bentley.** 'Current Discussions of Psychology and Education.' [Muensterberg, Royce, Titchener.] **J. E. Creighton.** 'Philosophy at the Scientific Associations.' [Crookes, Japp, Pearson, Spencer, Weldon.]

Psychological Review. Vol. vi., No. 1. **H. Muensterberg.** 'Psychology and History.' [If psychology and history remain yoked together, then either history will be resolved into psychological analysis and sociological law, or the unity of personality will overcome confidence in science. In the former case, history is ruined; in the latter, psychology. But the two can be separated, though not as idiographic (history) and

nomothetic (physics and psychology). Not in this way, since (1) all natural sciences set forth judgments of the existence of objects; (2) every assertion of a special fact demands reference to general facts; and (3) the manifold of reality is not infinite, and abstracting conceptions are not inadequate to the richness of the single fact. We start rather from the view that all science connects, while it is art that isolates. Then, classifying our material from an epistemological standpoint, we find that physics deals with overindividual objects, psychology with individual; the normative sciences deal with overindividual will-acts, the historical sciences with individual. "It is the unique task of history as a science to work out and make complete the teleological system of individual will-relations, thus to bring out the connexions between our acts and all the acts which we must acknowledge as somehow teleologically influencing our own." The method of psychology and history is thus the same: the material is different.] **J. R. Angell** and **H. B. Thompson.** 'A Study of the Relations between Certain Organic Processes and Consciousness.' [On the relation of circulation and respiration to various affective and intellective processes. Falls into two parts: a historical survey, and new work and interpretation. The processes dealt with are "cases of readjustment of an organism to its environment. Attention is always occupied with the point in consciousness at which the readjustment is taking place. If the process of readjustment goes smoothly and evenly, we have a steady strain of attention," and therewith a rhythmic regularity of circulation and respiration. "But often the readjustment is more difficult. The attentive equilibrium is upset, and there are violent shifts back and forth as it attempts to recover itself." Such "breaks, shocks, and malco-ordinations of attention are accompanied by sudden, spasmodic changes and irregularities in the bodily processes". There is no nearer correlation demonstrable.] **C. L. Franklin.** 'Mueller's Theory of the Light Sense.' [Criticism of points in Mueller's theory and plea for the greater reasonableness of the author's. Not convincing.] Shorter contributions and reports. **H. M. Stanley.** 'Professor Groos and Theories of Play.' [Instinct as such needs no practice. Much of what Groos calls play is really work. Play may have started with adult practice; or, perhaps, with teasing. Pure work and play are rare. Groos makes too much of shamming; his classification is incomplete. Play is "a generic general phase of emotionalism".] **F. Kennedy.** 'The Struggle for a Spiritual Content of Life.' [Report of Eucken's "Kampf um einen geistigen Lebensinhalt".] **I. B.** 'Experience under the Influence of Ether.' Psychological Literature. New Books. Notes.

American Journal of Psychology. Vol. x., No. 2. **F. E. Bolton.** 'Hydropsychoses.' [Investigates the influence that Water has exerted in shaping and moulding man's psychical organism. Pelagic origin of life: mental 'reverberations,' in primitive conceptions of life, philosophies, religious observances, literature, etc. Attitude of man to water at the present day: questionnaire returns. "There is unquestioned evidence of numerous rudimentary psychic traits and many others which, though not capable of rigorous demonstration, give strong evidence of their origin." The evidence turns out, however, to consist entirely of 'suggestions'. President Hall's psychoses are as inconclusive in proof as they are difficult of disproof.] **F. W. Colegrove.** 'Individual Memories.' [Questionnaire returns. Earliest memories; false memories; aids to memory, etc. Unpleasant memories play a larger part in women's mental life than in man's.] **L. W. Kline.** 'Methods in Animal Psychology.' [Interpretation is secondary; methods are wanted. There are two: the direct or natural, observation of free life; and the indirect or experi-

mental, observation under conditions which ask a question and favour the obtaining of an answer. Illustrations from vorticella, wasps, chicks and rats.] **E. C. Sanford.** 'Minor Studies from the Psychological Laboratory of Clark University.' xii. **G. M. Whipple.** 'On nearly Simultaneous Clicks and Flashes.' [Flash-click recognition takes less time than click-flash, for series of stimulus pairs as well as for one pair. Serial repetition reduces the time of recognition. The click is retarded, by the greater attention-claiming power of the flash.] xiii. **F. W. Colegrove.** 'The Time required for Recognition.' [Central process in recognition of pictures requires 0·2 sec. or less. Expectation decides the relative duration of judgments of recognition and of non-recognition. Interest of pictures shortens recognition time, as does increasing familiarity.] xiv. **F. W. Colegrove.** 'Notes on Mental Standards of Length.' [We have separate mental standards of the inches and half inches; finer estimation is made after these rough measurements are completed.] **E. Flood.** 'Notes on the Castration of Idiot Children.' [Bibliography and Brief Abstracts.] **A. F. Chamberlain.** 'On the Words for *Fear* in Certain Languages: a Study in Linguistic Psychology.' Book Notes. Notes and News. **W. S. Monroe.** 'A Study of Taste Dreams.' [Taste test gives 7 per cent. gustatory dreams to 48 per cent. visual; visual test, 3 per cent. gustatory to 60 per cent. visual.] Books received.

Revue Philosophique. April, 1899. **L. Dauriac.** 'La Philosophie de R. Wagner' [(Founded on *Richard Wagner, poète et penseur*, by H. Lichtenberger). The philosophy of Wagner is a religion rather than a philosophy. It is concerned solely with human life, and may be summed up in the words: "to live is to renounce". The good will is the will to renounce. (Illustrated in detail from the *Niebelungen Ring*). But renouncement is not an end but a method. By destroying the egoistic feelings we reach to the higher life, the life in all and for all. The poet looks to *human* renouncement for human redemption. *Parsifal* is a religious work, composed to the glory of Jesus. He came not to bring resurrection and eternal life, but to teach men they may win the redemption of themselves and of others by means of individual renouncement. This negation of the will is not suicidal, however. 'The life of the saint is not an anticipation of death, but a higher state of life which can only be attained by the exercise of the highest energy of the will.'] **J.-J. van Biervliet.** 'L'homme droit et l'homme gauche.' [The asymmetry of *function*. After dealing with the effect of asymmetry on locomotion, etc., the writer passes on to discuss the question of its origin.] **H. Bois.** 'La Dissolution de la Foi' (*fin*). [Writer denies that historical criticism is capable of destroying the basis on which Christianity rests. This basis is twofold, consisting of (1) certain material facts; (2) interpretation of these facts. The religious interpretation lies beyond the reach of historical criticism and this criticism has not, it is averred, succeeded in proving that the facts on which Christianity is based admit of a natural explanation. The moral miracle remains.] Revue Critique. **F. Pillon.** 'La Psychologie Analytique d'après Stout.' [In a twelve-paged review we get no allusion to anything beyond the first fifteen pages of the book under review. Mr. Stout's account of the nature of psychology, *i.e.*, as a positive but non-physical science, is contrasted with that of Comte, for whom physical = positive. With regard to method, while Comte denied the distinction between internal and external observation, Mr. Stout quotes three psychological methods: (1) introspection; (2) retrospection; (3) observation of certain outward signs. Reviewer quotes from M. Bonnet to show that (2) may be regarded as a species of (1). In a short concluding paragraph it is suggested that the author

would have done well to have avoided any allusion to the distinction between matter and spirit, which is a question for metaphysics. Psychology, like physics, is concerned with phenomena only and the order in which they occur.] Analyses et comptes rendus. May, 1899. **F. Le Dantec.** 'La Théorie Biochemique de l'Hérédité (II.).' [An attempt (too long to summarise) to prove in detail that the bio-chemical theory offers explanations of vital phenomena *at least as* complete as those offered by the vitalistic theory, while it enables us to predict phenomena of which the latter gives no hint.] **Goblot.** 'Fonction et Finalité (I.).' [Physiology, as a science, stands or falls with the conception of function, and function implies finality, subservience to ends. Only that property of living tissue is function which serves the end of its organisation. Like causality, finality is only immediately known to us in consciousness. To the primitive man all non-egos are selves; experience gradually teaches him to distinguish between persons, animals, plants and things. In the latter there is effort without intention, they are blind causes while man foresees and plans. Then comes a period of theological finalism; the intelligent will originally regarded as immanent in things is now conceived as lying outside and beyond them. Biological mechanism belongs to this period; living beings are artificial constructions presupposing an artificer. The final and scientific conception of causality is that of necessity, law. Uniformity of nature is the foundation of the Baconian induction. But if we are to understand vital phenomena we must view them not only under the form of causality but also of finality. The existence of science is the sole proof of the truth of the postulate on which it rests. The existence of physiology witnesses to the truth of the teleological order. But the teleological principle is particular only, not universal. Hence teleological induction is more complex, more difficult and perhaps more disputable than ordinary induction. It is a synthesis not an analysis.] **J. Philippe.** 'La Conscience dans l'anesthésie chirurgicale.' [The evidence alike of surgeons and patients goes to prove that under the influence of anæsthetics the patient does not lose consciousness and often suffers pain, but on waking he has no recollection of his experiences.] Notes et discussions. Analyses et comptes rendus. June, 1899. **L. Winiarski.** 'L'Équilibre Esthétique.' [If we are to have a science of æsthetics we must generalise the immediate results of experience and reduce them to their common substratum. The common substratum of æsthetic phenomena is nervous movement. We must also posit an 'æsthetic man' who, by an abstraction, is considered as solicited solely by the idea of obtaining the maximum of æsthetic pleasure. Man may be considered as a material system endowed with biological energy. This energy constantly undergoes transformations until a position of equilibrium is established and all his wants are equally satisfied.] **Marro.** 'Le Rôle Social de la Puberté.' [A comparative study of marriage customs among different peoples, tending to show that sexual selection plays an important part in contributing to the preservation and cultivation of such qualities as promote the evolution of societies.] **Goblot.** 'Fonction et Finalité' (conclusion). [Constant coincidence is an indication of the presence of causality; complex fitness of the presence of finality. Every end may be regarded as an advantage of some kind for something. In order that an end may be attained certain conditions must be fulfilled. But fitness affords a presumption only, not a proof of finality. Proof can be given by the 'method of the initial term'. Unlike the causal series, the final series has a beginning and an end. The importance of the initial term has been strangely overlooked. It is a need of the advantage afforded by

the end. This need may not be *known*, it may, perhaps, not even be *felt*. But when it can be shown that such a need determines a series of effects tending to realise the advantage then we have proof of finality.] **G. Dumas.** Revue critique (Névroses et Idées fixes d'après M. Raymond et Pierre Janet). Analyses et comptes rendus. Revues des Périodiques Étrangers (MIND).

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Bd. xix., Heft 4. **K. B. R. Aars.** 'Ueber die Beziehung zwischen apriorischem Causalgesetz und der Thatsache der Reizhoehe.' [The validity and necessity of the causal law merely constitute a particular case of the rule of mental maxima. In other words, they depend upon the fact that human certainty readily reaches its maximum, upon the existence of the terminal stimulus.] **G. J. Schoute.** 'Wahrnehmungen mit einem einzelnen Zapfen der Netzhaut.' [It is possible to discriminate at least eight degrees of magnitude in images thrown upon a single cone. The criterion of size is amount of light, *i.e.*, product of surface into intensity.] **O. Polimanti.** 'Ueber die sogenannte Flimmerphotometrie.' [Flicker values do not agree with twilight values (so Schenck), but rather with peripheral brightnesses (von Kries). Confirmation of this from two dichromatic subjects. Observations on the frequency of oscillation necessary to produce continuity of sensation.] Besprechung. **A. Hoefler.** 'H. Gross. Criminalpsychologie.' Litteraturbericht. Heft 5 und 6. **E. B. Titchener.** 'Zur Kritik der Wundtschen Gefuehlslehre.' [Wundt's classification attempts to reconcile logical arrangement with introspection. His account of the origin of feeling is incomplete. Introspective evidence for the pleasure-pain theory.] Litteraturbericht. Bibliographie der psychophysiologischen Litteratur des Jahres 1897. [Two thousand four hundred and seventy eight titles: the *Psychological Index* and the *Année psychologique* had two thousand four hundred and sixty-five.] Bd. xx., Heft 1. **D. Hansemann.** 'Ueber das Gehirn von Hermann v. Helmholtz.' [The brain showed great richness of convolution. The frontal lobes, the præcuneus, and the gyrus angularis call for special mention. Helmholtz had a slight hydrocephaly in youth. This is very likely significant (so Perls and Edinger), the increased brain-pressure acting as stimulus to brain growth.] **M. Meyer.** Ueber Beurtheilung zusammengesetzter Klaenge.' [Terminological: 'analysable' clangs; 'note' for 'tone' in parallel octave, etc., singing; 'attention'. Critique of Stumpf's laws that the lowest tone of a resting clang carries the pitch of the whole, and that in successive compound clangs the part that moves in the largest steps carries the movement. Rejection of Lipps' definitions of fusion. Attention cannot intensify; whether addition of new tones means increased intensity cannot at present be decided.] Litteraturbericht. Bd. xx., Heft 2 und 3. **W. von Zehender.** 'Ueber geometrisch-optische Taeuschung.' [Revives Volkmann's discovery that retinal verticals apparently parallel really diverge upwards. Illusions are matters of apprehension, not of sense-organ; but Lipps' theory is inadequate. Volkmann's principle explains the Poggendorff figure. Distinction of periscopic (discursive) and episcopic (concentrated) vision: variations in the Poggendorff effect with varied direction of the lines of regard. Explanation of angle illusions (Hering, Zoellner) by an extension of Volkmann's principle. Quantitative experiments.] **A. Samojloff.** 'Zur Kenntniss der nachlaufenden Bilder.' [For von Kries, against Hess: shows that the recurrent image is complementary in colour, and lacking at the spot of clearest vision. Describes a simple but accurate apparatus.] **M. von Frey** und **F. Kiesow.** 'Ueber die Function der Tast-

koerperchen.' [An excellent paper, whose chief object is to determine the importance for pressure sensation of the magnitude of the stimulus surface. When the effect of velocity of deformation is ruled out, the optimal surface for a single end-organ is about 0·4 sq. mm. This fact, as well as the phenomena following from increase and decrease of surface, can be resumed in the law that for the excitation of a touch corpuscle a certain fall of pressure (expressed by dp/dr, where r is the distance of the given point above the cutaneous surface, and p the pressure at the same point) is necessary at the place of stimulation. The sensation is identical, whether the pressure be push or pull ; in either case the fall of pressure is the adequate stimulus of the organ. Its exact measure is impossible ; calibration of æsthesiometers, etc., can, however, be suitably carried out in terms of an empirical tension unit, 1 gr. mm.] **G. Heymans.** 'Zur Psychologie der Komik.' [Lipps' general formula is that the insignificant has a large measure of psychical force put at its disposal ; the comic element is present when an expected significant is replaced by an insignificant, or when something seems significant, but turns out on examination to be insignificant. Heymans accepts the theory ; but adds the cases of discovery that an attractive novelty is entirely without interest, of the interruption of a significant by a disparate insignificant, of the sudden solution of an exciting riddle, and of momentary exaltation of a depressed self-estimation.] Litteraturbericht.

Philosophische Studien. Bd. xiv., Heft 4. **E. Mosch.** 'Zur Methode der richtigen und falschen Faelle im Gebiete der Schallempfindungen.' [An investigation of sound intensities by the fall-phonometer, the primary object of which is to better the mathematics of the method of right and wrong cases in the light of the recent work of Bruns, Fechner and Lipps. The instrument was improved, and the procedure without knowledge secured by the use of four in place of two stimuli. Result : the generalised law of distribution does more justice to the psychological facts than the simple Gauss law. The measure of uncertainty, U, however, has nothing whatever to do with the S. D. or with Weber's law. Whether the x-values (limits of the different judgments) can do service in this regard remains to be proved.] **R. Seyfert.** 'Ueber die Auffassung einfachster Raumformen.' [Experiments with triangles. Most accurate apprehension is given with presentation of the figure to the eye, and tracing of contour by eye-movement. Next in rank stands eye-movement alone, without retinal image. Much less accurate, and requiring much more practice, is judgment with constant fixation. Simultaneous movements of hand and arm are usually prejudicial, though with a high degree of practice the reverse may obtain. Apprehension by means of such concomitant movements alone is practicable but inaccurate.] **F. Kiesow.** 'Zur Psychophysiologie der Mundhoehle.' [The painless region of the cheek is that bounded by the zygomaticus major, the triangularis, and the risorius Santorini (region of the third branch of the trigeminus). Sensitivity to pressure is normal (mechanical and electrical stimulation) ; as is the thermal sensitivity (heat and cold). Comparative determinations are given from other portions of the buccal mucous membrane.] **F. Kiesow.** 'Ein einfacher Apparat zur Bestimmung der Empfindlichkeit von Temperaturpunkten.' **F. Kiesow.** 'Schmeckversuche an einzelnen Papillen.' [Experiments on thirty-nine fungiform papillæ. Only four refused to react to any of the four stimuli, salt, sugar, quinine, hydrochloric acid. For the rest, great functional variations were observed.] **E. W. Weyer.** 'Die Zeitschwellen gleichartiger und disparater Sinneseindruecke,' I. [Historical : Exner, Hamlin, Drew (liminal time-interval between impressions) ; Wundt, von Tschisch (time-

displacement by attention; complication experiments). The present nquiry deals (1) with the time limina of the various sense-departments, and (2) with the liminal time relations of successive disparate stimuli. Special regard is had in the latter case to attention. Description of apparatus and methods.]

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE. Jahrg. xxiii., Heft 2. **Oswald Külpe.** 'Ueber den associativen Faktor des aesthetischen Eindrucks.' [The associated presentations must have immediate interest which can make the mere contemplation of them a source of pleasure. They must also combine with the formal factor in a single harmonious whole.] **Eugen Posch.** 'Ausgangspunkte zu einer Theorie der Zeitvorstellung.' Zweiter Artikel. [The futurity of mere thoughts and the speech forms in which futurity finds expression. The nature of the Present; is it a portion of time? Simultaneity.] **Hermann Schwarz.** 'Die empiristische Willenspsychologie und das Gesetz der relativen Glücksförderung.' [Maintains a nativistic theory of Conation against all attempts to reduce it to a complex of presentations or of feelings and presentations.] Besprechungen, etc.

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE. Band v., Heft 2. **B. Tschitscherin.** 'Raum und Zeit.' [Time is an attribute of the absolute Subject-Object. Space is an *a priori* form with a counterpart in empirical reality, to be discussed in a future article.] **Hans Kleinpeter.** 'Ueber Ernst Mach's und Heinrich Hertz' principielle Auffassung der Physik.' [Sharp distinction between conceptual construction and matter of fact. We have free control over concepts as such because they are the work of our own mind.] **Paul Natorp.** 'Zur Streitfrage zwischen Empirismus und Kritizismus.' [Disputes position maintained in Kleinpeter's article.] **Jakob Hacks.** 'Die Prinzipien der Mechanik von Hertz und das Kausalgesetz.' [Life does not conform to the mechanical principles which hold good of inorganic matter.] **Max Wentscher.** 'Zur Theorie des Gewissens.' [Distinguishes three meanings of *Conscience:* (1) feeling-reaction on comparison of action with idea of duty; (2) ethical concepts current in a society; (3) critical reflexion of the individual on ethical questions. (2) cannot explain (1) and (3), it can only supply their special content at a given time.]

PHILOSOPHISCHES JAHRBUCH. Bd. xi., Heft 3. **Švorčík.** 'Uebersichtliche Darstellung und Prüfung der philosophischen Beweise für die Geistigkeit und die Unsterblichkeit der menschlichen Seele.' [In this, the first of two papers, the writer first gives the proofs of the immortality of the soul: those that proceed from the immateriality of mind, and of the will, and from the phenomena of self-knowledge; also those of Leibniz and Beneke. He then examines the proofs as to the principles on which they are based, attacking those of Descartes, Leibniz and Beneke.] **Seitz.** 'Die Freiheitslehre der lutherischen Kirche in ihrer Beziehung zum Leibniz-Wolff'schen Determinismus.' [This article expounds the doctrine of free-will, firstly as set forth by Luther himself, and then as modified by Melanchthon in the teaching of the Lutheran Church; the influence of these upon the determinism of Leibniz and of Wolff; and the antagonism of the Pietists to the latter system, which they considered as irreligious.] **Dentler.** 'Der Νοῦς nach Anaxagoras.' [In conclusion, the writer examines the action of the Νοῦς on the world, according to Anaxagoras. It seems certain that he does not suppose it only gave the first movement and impulsion to the universe, but also influenced its orderly development—and probably, though not certainly, that it still continues its direct action after the first movement given.]

Rivista Italiana di Filosofia. May-June. **A. Andres.** 'La Interpretazione Meccanica della Vita.' [Despite the admission of a special vital force by Aristotle, Leibnitz, Van Helmont, Barthey, Cuvier, Milne-Edwards, Virchow and others it is contended that vital manifestations can be explained by the usual chemical, physical and mechanical laws, and thus the distinction between organic and inorganic is not one of kind but of degree, consisting in the greater complexity of composition of the former. The specially organic properties of movement and conscious sensation, in the higher animals, are similarly explained—the former being a phenomenon of electric magnetic attraction and repulsion, while the latter is boldly faced by an hypothesis, namely, that every atom of matter possesses consciousness in an infinitely small degree, in proportion, to the infinitely small degree of its volume and weight. Owing to chemical combination of atoms, special properties become accentuated, whence are evolved, step by step, the various forms of organism.] **G. Vidari.** 'Le Scuole Secondarie e la Società Presente.' [A discussion of the respective merits and positions of a liberal and professional education, with special reference to Italian Universities.] **L. F. Ardy.** 'Dante e la Moderna Filosofia Sociale' [Continues the exposition of Dante's views upon modern economic questions. The relation of capital and labour finds place in the condemnation of usury. Under the general discussion of Cosmopolitanism against Patriotism, it is interesting to note that Dante, like Leibnitz, Kant and Victor Hugo, believed in a *pax universalis*, towards the attainment of which Art and Poetry are potent instruments.] **E. Passamonti.** 'Giovanni Battista Benedetti.' Bollettino, etc. July-August. **A. Velardita.** 'Evoluzione e Dogma.' [A criticism of the attempt of Rev. S. A. Zahm to reconcile Roman Catholic Theology and Evolution. The writer of the article shows that the ideas of a creation and of evolution are irreconcilable.] **A. Bartolomei.** 'I Principi Fondamentali dell' Etica di Roberto Ardigò e le Dottrine della Filosofia Scientifica.' [This, the first of a series of articles, discusses the nature of Ethics from the Positivist standpoint, and especially, in the present instalment, the relation of Ethics to Sociology and the Theory of Rights. Natural right is the theoretical expression of a social consciousness or social ideal, which is critical and progressive, sometimes even revolutionary, though, in certain instances, tending towards conservatism.] Nota.—**F. Papafava.** 'Origine delle Professioni secondo lo Spencer.' Bibliografia. Bollettino, etc.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

I.—PSYCHOLOGICAL PHILOSOPHIES.[1]

By Shadworth H. Hodgson.

The title Psychological Philosophies may, not improbably, suggest the objection—But are not all philosophies of necessity psychological? And it is true, that any philosophy must include some psychological theory or other, inasmuch as, being or aiming at being a Knowing of the most comprehensive kind, it would be incomplete without taking account of the Subject, process, and function of Knowing, as well as of its content or object known. But this is not the sense in which the term *psychological philosophy* is here used.

To see this we must consider, that the purpose of philosophy is to obtain, if possible, some true and systematic theory of the Universe of Being. That of psychology is to obtain an equally excellent theory of the Soul, Mind, Spirit, or other agent, of which, in the case of Man, Knowing is a function. The two pursuits are thus closely allied, Knowing as a function being at the least common to both; while at the same time they are disparate, when they are compared with each other, and defined by the purposes at which they severally aim.

It can now be seen what is meant by calling a certain class of philosophies psychological. They are those which base, or attempt to base, a theory of the Universe of Being upon psychological conceptions or psychological hypotheses; or, in other words, to explain the nature and activities of the Universe, or of the Great First Cause, the Divine Being,

[1] Read at the Meeting of the Aristotelian Society, 12th June, 1899.

by means of the nature and activities of Man, the highest in the scale of the real beings which are positively known to us by experience. In short, they are those which give a psychological answer to the philosophical question, and thereby raise psychology to the rank of philosophy by solving its distinctive problem as to the nature of Ultimate Reality.

I avow that, in my estimation, all such attempts bear written on their face the mark of presumption and impracticability. My reason is, that they begin with the assumption of a subjective agent or agency, as for instance when they start with the distinction between Body and Mind, or between Subject and Object, without first ascertaining and justifying the meaning of these or similar terms by simple analysis of consciousness. Nevertheless so long, and so far, as the psychologists fairly face the philosophical problem, acknowledging that the problem of which they offer a solution is the problem which is distinctive of philosophy, they fairly entitle themselves to the name of philosophers, and their arguments are fairly entitled to be heard and pondered, and their solution, if found satisfactory, to be not only admitted but welcomed in all philosophical circles, welcomed heartily and with applause.

I hope, in that case, that I should be found among those who were ready to retract their former adverse opinion as erroneous, and frankly acknowledge their mistake. I am not, however, intending to argue the question in the present paper. What I wish to do now is to give a somewhat more particular account of what psychological philosophy is, by distinguishing the main classes into which it falls, and by which it is represented at the present day, so that by its marks you may recognise it, when you happen to meet with one of its representatives. I class these philosophies under three heads, or theories of three kinds: 1. The Soul or Mind theory; 2. The Ego theory; 3. The Mental Function theory.

1. The good old Soul theory is of venerable and prehistoric antiquity. Things were supposed to be alive because they had souls in them, just as leaves are held by scientific people to be green because they have chlorophyll in them. Mere Matter, it was thought, could not animate itself; it must possess a principle of animation which was not itself material, in virtue of which it became the vehicle of life, sentience, intelligence, and intelligent action; that principle being, in fact, the real though hidden agent in all cases where the body, which was its vehicle, appeared to live and act as a sentient and intelligent being.

But this theory of a Soul or Mind was evidently applicable

not only to individual persons, but to the whole of Nature, except such articles of human construction as were obviously lifeless. There arose accordingly the theory of an *Anima Mundi;* a theory which Virgil beautifully expresses in lines which he puts into the mouth of Father Anchises in the Elysian Fields (*Æneid* vi., 724-734). We may call it, from an expression there used, the *Mens agitat molem* theory. From this Universal Soul or Mind individual persons were supposed to receive a particle or spark,—*divinæ particulam auræ*, as Horace calls it,—on their coming into being. It was the source of their immortality, their indefeasible title to Heaven. This theory is now chiefly current in theology and poetry. It is probably the theory intended to be reformulated by Leibniz in his phrase Monad of Monads, applied to God, and also by Wordsworth in his

> Soul of our Souls, and safeguard of the World!
> (*Excursion*, book iv., line 28).

All common-sense people know what a Soul or a Mind is, though no one else does. But let me not be thought for a moment to disparage or undervalue this use of the terms. Nothing can be farther from my thought than that. It is as explanatory terms, as terms in which a philosophic or scientific theory may be expressed, that they are (in my opinion) useless. As used for expressing and enforcing moral and religious truths, apart from analysis and speculation, they are, by dint of long and complex association, priceless and indispensable.

2. As terms of philosophy or science they must be held to have given place to a new form or modification of themselves, namely, to the second theory I have mentioned, the theory of the Ego, when Descartes laid down as a self-evident truth, and one of the corner-stones of his philosophy, the famous dictum, *Cogito ergo sum.* Strictly, modern philosophy begins with that dictum, as the first distinct recognition of subjectivity; that is to say, that immediate experience was the source and test of knowledge. By the *Cogito ergo sum*, in place of the conception of a Soul or Mind, there was substituted the conception of an Ego or Self, the distinctive character of which was Self-consciousness. The fact expressed by the *I think* was immediately recognised by every one as his own indisputable experience; and the inference drawn from it as *causa cognoscendi: Therefore I am*, was also recognised as an indisputable statement of the reality of the agent, or *causa existendi*, of the thinking.

But the nature of the Ego or Self was still undiscovered.

What it was, and *how* it gave rise to thought, was not disclosed. The dictum itself, therefore, the *Cogito ergo sum*, still remained a piece of common-sense experience, and the agent which it asserted, the Ego or Self, was not in reality fitted to serve as an hypothesis accounting for the experiences, that is to say, for the perceptions, thoughts, and actions, of sentient beings. No doubt whatever, that I, you, he, felt, thought, and acted; but what was the I, you, he, apart from our feelings, thoughts, and actions? Of this, although self-conscious, we were just as ignorant as we were of the nature of the Soul or Mind, now supplanted by this newer hypothesis.

Thus breaking down as a psychological hypothesis, it was *a fortiori* unable to form the basis of any tenable account of the nature of the Universe. It was a conception without any content of its own, empty of all content save that which it was required to explain. It was a mere tautology. In vain was Fichte's attempt to raise the Ego to transcendental rank, as an Absolute Ego. In vain J. F. Ferrier of St. Andrews, in his *Institutes of Metaphysic* brought it down again to earth, and endeavoured to deduce, in Euclidean fashion, a whole system of philosophy from his First Proposition, which runs thus: "Along with whatever any intelligence knows, it must, as the ground or condition of its knowledge, have some cognisance of *itself*". What *is* an intelligence? *What* knowledge has it of *itself?* The old question still recurred, and still remained unanswered.

Meantime the ground won by the Cartesian *cogito*, the advance towards subjectivity in philosophy, had not been lost. The *content* of feelings, thoughts, and actions, was still there as of old; and though it was evident that the Ego was no unit with a positive content in that character, it was equally evident that there was unity in feelings, thoughts and actions, in the form of an ever-present combination of them, as parts of the history of individual persons, or so-called self-conscious living beings. The question now was, in what did this unity consist, and in what part of the self-conscious personality did it originate and reside?

3. The way was thus laid open to theories of the third class mentioned above, the Mental Function theories, as I have called them. Conspicuous among these is the Hegelian theory, which singled out the function of Thought or Thinking, so far as it was pure consciousness, as that which evolved and explained the rest, and all that they contained. In order to place it in this commanding position two assumptions were necessary, (1) that it possessed energy or activity in its own right, acting under a logical law of its

own, the principle of Negativity; (2) that it also possessed in its own right at least one conception, that of Being, not derived from any alien, that is to say, from any perceptual source. It was supposed to be a purely mental or spiritual activity, to the eternal operation of which were due the nature and the existence of that which ordinary common sense calls the Universe, including the Great First Cause, or Divine Mind.

It was the peculiarity, and, perhaps, as some may think, the inconvenience, of a theory which thus selected a single psychological function, detached from the rest, to bear the burden of explanation, that, unlike theories of the two former classes which proceeded from psychology to philosophy, it was compelled on the contrary to begin with philosophy, and supply a theory adequate to explain the Universe, before descending into psychological questions. Indeed, so far as I know, psychology proper was something to which Hegel never did descend. He was satisfied with explaining, first the world of inorganic matter, or Nature in Time and Space, then the world of individual minds, considered chiefly in their relations to one another as members of a vast society, and finally the Absolute Mind itself, as one and all identical with a single psychological function, namely, with that creature of his imagination, Thought; or, as he also expresses it, with the Self-determining Concept (*Begriff*), whose law is Negativity.

It is difficult to see how a theory which holds that everything is what it isn't as well as what it is, on the ground that its full Concept or *Idee* can only be formed by taking account of what it is contrasted with, while that full Concept or *Idee* is the thing itself, can afford an explanation of anything whatever. But although Thought, as a function acting by the law of Negativity, has of itself no fixed point on which an explanation can be suspended, yet it may be supposed to attain one when it reaches its full and complete realisation in the Absolute Mind (*Geist*); and then, on reaching that realisation, which it is supposed to have done from all eternity, it returns as it were into itself, its path of development as a function being considered as describing a closed circle, having its end and its beginning identical. But in that case, the Absolute Mind being thus complete, and free from the action of all Negativity which is not included within itself,—an action which, if admitted, would destroy its absolute character,—is, in respect of its being the source of all activity, neither more nor less than our old friend of the first class of theories, that *nominis umbra*, the Soul or Mind which animates the World. And it is from that conception, if from anything,

that its explanatory power must be derived. The theory may therefore be held to be an instance of atavism, notwithstanding the obvious difference, that, in its new shape, the Mind is supposed, not merely to animate, but also to evolve Matter out of its own conceptual activity.

Another great instance of the Mental Function theory of the Universe is afforded by Schopenhauer, the title of whose principal work, *Die Welt als Wille und Vorstellung*, expresses that contrast between Real Agency (*Wille*) and its phenomenal manifestation (*Vorstellung*), of which what we call the Universe consists. The Will takes the place of the Kantian Thing-in-itself, the real but hidden agency which we ourselves, though self-conscious, really *are*, whatever else, as phenomenal beings, we may appear to ourselves and others to be. Self-consciousness, which is intelligence, enables us to arrive at the insight, that all Individualisation, and all our desires as individuals, are not our real being, but must be denied and renounced, if we would be free from illusion, disappointment, and pain, which are their necessary accompaniment. The selection of the Will as the mental function explanatory of the Universe gives, as might be expected, a practical rather than a speculative character to philosophy. It results in the precept, to merge the individual in the universal Will, and cease to exist in distinction from it. To this end the function of intelligence is merely instrumental.

From these instances, which I do not attempt to criticise, I leave it to my hearers to judge, whether psychology is ever likely to furnish us with a conception or hypothesis, which will be a secure foundation for philosophy. The human conscious Subject, as it seems to me, is too small a part of the infinite and eternal whole, to be taken as a sample of all conscious Subjects which may possibly exist, and of whose nature we can form no positive conception whatever. And if not of the nature of the Subjects, still less can we form one of the nature of those experiences which constitute their several worlds. It is, therefore, hopeless, in my opinion, to attempt the solution of the philosophical problem by the way of psychological conceptions; though by this I by no means intend to affirm, that a full speculative solution, such as is promised by the way of psychological conceptions, is really attainable by the way of philosophical analysis, or by any other way which may be devised. The only solution rationally attainable may, and probably will, be found to lie in ascertaining the nature of those limitations, by which the attainment of a full speculative solution is precluded.

II.—ROUTINE PROCESS.[1]

By Gustav Spiller.

1. *The History of a Routine Process.*—A child is being taught to write. Laboriously he learns by heart the precise appearance of each letter. He does not distinguish between d's and b's, p's and q's. He dips the pen too far into the ink-pot. He blots the paper, and his characters are now too faint and now too pronounced. The letters he forgets to shape properly: neither higher nor lower, neither broader nor narrower, neither thicker nor thinner, than the example. The pen is not held in a manner which prevents unnecessary work or awkwardness of movement. The paper is placed wrongly and is not kept clean. The arm is not sustained in the particular fashion required, and the whole bodily bearing fails to conform to prescribed rules. The necessary speed is not attained. The words are not properly divided. The lines are not at right angles to the sides of the paper. The spaces between these lines are not uniform.

Much which is objectionable, the child picks up by the way, and thus he has afterwards to unlearn what he injudiciously acquired. Many things the child is told, and some of these he forgets or misunderstands. Here, again, much ground needs to be recovered. When an explanation is proffered, the child has difficulty in following it. He does not at first remember with ease. He often stops trying to recollect something he has forgotten. He suspects. He doubts. He argues with himself. He asks questions. He corrects his copy. He watches every movement he initiates. He observes what progress he is making, and imagines what teachers, parents, or fellow-pupils will say. He repeats to himself: "I mustn't hold the pen so; I must hold it in this way". "That letter falls below the other letters of the line." "This letter I fashioned all right." "Oh! look at that blot!" "I wonder whether this is right." "I wish I had finished."

[1] Organic reaction, organic trend, and organised activity are used in this paper as equivalents of Routine Process or Habit.

Many years after the child studied the scriptorial art we meet a person who writes easily and well. This adult is the whilom child who found learning to write an arduous task. That accomplishment is no more a problem to him. He proceeds now without apparent effort of attention. How shall we account for the surprising change? To this question we propose to seek a satisfactory reply.

2. *Memorising the Facts.*—(*a*) In learning to write, various facts came to the child's notice, and these he was asked to remember. Through instruction, through both deliberate and chance observation, through reasoning, the facts were collected item by item. Committal to memory gradually made recollection of the material to be utilised perfectly easy. After the lapse of a certain period the child knew that which the man knows. As soon as any detail was required, it instantly presented itself. Having what is relevant firmly fixed in the memory, there is never—or almost never—a need to doubt, to suspect, to argue, to cast about, or to try and remember.

(*b*) A variety of accidental difficulties embarrass the learner. There is a blot—how is he to behave towards it? The new pen refuses to take up the ink—what is he to do? The position of his body is ill-chosen for writing—how is this to be remedied? His shadow falls on the paper—how shall it be prevented? The pen scratches or spurts, the penholder or pen is one he is not used to—how meet the difficulty? Such are some of the obstacles which detain the intelligent learner. These queries come to him at first as problems demanding a solution, and some of them may require severe thinking before they are disposed of. But as practice proceeds new cases tend to be extremely rare; for, once a difficulty is settled, the solution is soon well remembered, and the problem ceases to exist. Thus special instances which resemble problems do not present themselves as such; they are now mere recalled facts. Just as we bring back from the stores of memory a normal constituent in a routine or organic process, so we remember these non-organic cases, for they have really become part of the normal order. Consider an experience. The country road along which a certain individual passes is too rough for comfortable progress. He shuns the flints. If one of them is in one position he steps beyond it; in another position, he takes a shorter step; in a third he steps to the right; in a fourth, he steps to the left. By accident he may tread on an ugly piece of flint sideways, or on his heels, or sole, or tip, and in each instance he meets the difficulty in an intelligent manner. So with

the minor undulations of the ground, or in walking up hill or down hill, or on board a vessel—an appropriate solution is forthcoming for each instance. At first it might seem that on every separate occasion he is compelled to decide on one out of a dozen courses. As a matter of fact, each special difficulty has occurred previously, is remembered, and stands isolated. These cases cease to be cases of special difficulty. The solutions are firmly fixed in the memory. The obstacles as they appear, are settled by memory, and not by reasoning, speculation, or inquiry.

(*c*) The precise effort needed in the formation of any letter or part of a letter is recollected. Should more or less energy be required, the memory will gauge it. But for memory the hand instead of going slowly might go quickly; instead of in one direction it might move in another. The particular quantity and quality of muscular energy needed in an organic trend is not a matter of calculation. Suppose a man discards an umbrella and procures a new one. After he has used the latter for some time it strikes him that the umbrella flies open rather too quickly. Then it occurs to him that the springs of the new one act much more readily than the springs of the old did, and that he had neglected to observe the difference. In ignorance he spent as much energy in opening this umbrella as in opening his late one. That is to say, we do not take each case on its merits; we go by precedent. In writing, recollection stands in the same relation to the muscles as it does to sights or other sensations.

3. *The Process of Simplification.*—(*a*) At first, as we hinted, there is a many-sided interest. We wonder what is thought of our writing. We speculate whether we shall be praised or blamed. We doubt whether all is right. This interest is bound to depart in time, and also the play of mind connected therewith. No motives remain that induce us to busy ourselves concerning our caligraphy. There is nothing left to wonder about—except, perhaps, our bad handwriting. The atmosphere of thought has changed.

(*b*) The time and energy spent in doubting, hesitating, brooding, trying to remember, etc., are now saved. As the interest in writing declined, so have these agitations of the spirit proportionately decreased.

(*c*) At the commencement, especially when the child has little or no guidance, he is sure to make many mistakes. How is it that he forgets these? It is evident that writing would be most cumbersome if he first remembered the mistakes, and was bound afterwards to dismiss or correct them. If such were the fact organic trends would be buried

in confusion. Moreover, experience proves that he does not remember his mistakes. The apparent anomaly is accounted for as follows. When a right solution and a wrong one present themselves, he does not dwell equally on the two. The wrong one he regards with no interest and speedily dismisses. On the right one he dwells sensibly ; he is deeply interested in it ; he keeps it before his mind. Other things being equal, of the two subjects that which is dwelt upon is the one more easily remembered. Hence the right solution will tend to be recollected rather than the wrong one. Suppose he has for a second time to perform the action in which he dwelt upon the right solution and ignored the wrong one. That will happen which favours the former. He will make an effort to recall that and not the wrong one. Other things being equal, memory will favour the recollection of that which we make a sensible effort to remember. Hence the wrong solution is less likely to recur. Again, the right solution having been acted upon, the action is connected with the right solution and not with the wrong one. Hence thinking of the action will suggest the one and not the other. Further, the one solution having been acted upon, it was for a longer period before the mind, and memory will therefore favour the recollection of that one of two or more lines of action which has been previously acted upon. And again, the wrong solution is not only dismissed ; it is recognised quickly, and therefore set aside the more quickly. We do not wait till it has fully unfolded itself. We thrust it back before it has seen the light of clear consciousness. Each time a solution is required, the right one is thus favoured, and the wrong one discouraged. Hence, on the average, the one not favoured is soon forgotten. Once more, other things being equal, that is recalled in which we are interested. Hence the right solution, in which we are interested, will be recalled, while the wrong one, in which the interest is negative, will tend to be forgotten. And lastly, since the right solution is acted upon frequently and at short intervals, it, rather than the wrong solution, will be fixed in the memory.

In the preceding reflections we have an ample explanation of the fact that error lapses. In learning to write such error tends to disappear, while the knowledge of what the process should be prevents new mistakes from arising.

The following propositions express the argument of this sub-section : (1) That on which attention is more exclusively centred is more easily remembered. (2) That which we do not, in the initial stage, make an effort to remember, is

forgotten. (3) That thought which is acted on is connected with the action, and is more easily recalled than that which is not connected with it. (4) That which is recalled, as well as dwelt upon, is more easily remembered. (5) If any part of what is erroneous is remembered it tends to be immediately dismissed from the mind or suppressed, thus hastening the oblivion of error. (6) That in which we are not interested, or where the interest is negative, is not recalled. (7) Only that, other things being equal, on which attention has been centred frequently at short intervals, is remembered.

(*d*) Suppose the child is about to write the letter "i". He admonishes himself "Dot your i's". So with the letter "t," he recalls "Cross your t's". Similarly he says, "I must hold the pen thus". In this fashion many of his actions are preceded by shorter or longer remarks. As he advances in his studies such preliminaries become obviously superfluous. The memory being perfected and the interest waning, these scaffoldings are removed in the manner indicated in the preceding sub-section. What happens with preliminaries happens with everything which is not essential to the process. One element after another lapses until nothing but what is essential to the action (as we learnt it) survives.

This elimination of what is non-essential is facilitated by another cause. We can only attend simultaneously to a limited quantity of objects. If we are considerably interested in one thing we cannot spare much interest to other things at the same time. Thus there is a constant tendency, as in congested areas, for thoughts to drive each other out of existence. We wish to write, and we want also to think of the subject-matter of the writing. The spare attention is needed. Hence a tendency to make no more ado about a task than is absolutely necessary. The lessening of the interest itself partly disarms opposition. When we are, therefore, concerned about something, any disturbing or unessential phrase, as "Cross your t's," is suppressed as soon as it rises or tends to rise. With these occasions multiplying, and our interest in the writing departing—in the manner explained in the preceding portion of this paragraph—everything unessential is forgotten. As the miller removes the husk, so our ideas in the process of learning to write are gradually reduced and steadily divested of what is non-essential, until the pure flour alone remains. The occasion for this grinding down presents itself in practice through the need of, or desire for, attention to other matters, and, hence, of our apprentice efforts, we retain only what cannot be rejected. The process of reduction needs no deliberate determination. We require

no special knowledge as to how to bring about the minimum of attention to our work.

Necessity grinds very small, smaller by far than we expect. We cannot be too clear as to the character of these important changes. Let us then see to what extent our ideas shrink. We have seen interest fade, difficulties vanish, problems disappear, preliminaries dispensed with. Next, the child forgets the formal aspect of the writing process. When his studies commenced he learnt that he must hold the pen in a certain manner if he wished to write with ease, that the arm should not be placed as the reinless fancy prompted, and the like. He knew, broadly speaking, why he did things and how he did them. This knowledge of the how and the why of the process was doomed from the beginning. Gradually losing his interest in writing, having no longer any need to refer to that knowledge, and being eager to attend to other subjects, he slowly forgets the how and the why. At first there was a conscious bond of time and order; but now all ties are gone. He cannot tell relationship, time, or succession. Each point is recollected independently of every other point. He cannot even indicate the *what*, though he knows what to do. The *what* has departed as an idea, and exists as a remembered act. As the child progressed there was no need to recall the *what*, the *how*, the *why*, or any other system of relationships, and so these are forgotten. We detect here no substituted or added constituent, only certain once-existing factors have been removed. All that could be dispensed with has been cast aside.

Necessity has dissolved the connexions which once prevailed. Hence the child cannot freely remember the process of writing, or its relations, or its successive steps. When a portion is conspicuous, as the holding of the pen, he easily imagines the attitude. But when called upon to give a description from memory of the whole process—static and dynamic—he, like the mass of men, breaks down in the attempt. Even most of what is supposed to be remembered proves erroneous.

We usually recollect things well, because they are interconnected in our thought. So many experiences resemble them, and they are related to so much else, that they remain in continuous touch with the general current of thought. Most objects have points in common with other objects, so that even when we, to all appearance, do not think of them, we yet have portions of them in mind. As we move hither and thither in thought we often come across stray notions, just as we meet friends otherwise than by appointment, and

when we do not meet these we yet encounter thoughts that involve fractions of them. Thus ordinary ideas have a fair opportunity of being recollected. In the case of the atoms we are dealing with, this is different. They lack universality and all relationship except the one that connects them with their stimuli. These "writing atoms," on account of their peculiar unfitness, never enter the normal stream of thought, and hence there is nothing to recall them. They lack intelligibility. They live entirely to themselves.

4. *Reduction of Effort.*—While advancing, the child discovers on frequent occasions that a less effort will accomplish his object as completely as a greater effort. He reduces accordingly his strain, and energy is thus prevented from running to waste.

5. *Appropriate Exercise.*—It is known that, within limits, appropriate physical exercise hardens and increases the size of the muscles, and that we are, as a consequence, able to carry out more with the same or a lesser effort. We are also aware that only continued effort, and not effortless exercise, leaves marked traces. As with strength, so with skill. Apart from what a perfected memory accomplishes, there is an additional aid given by neural development of some kind. We become, through appropriate exercise, more skilful than we should be otherwise. Nerve messages are conveyed with greater rapidity and unfailingness. For this reason, over and above what memory, oblivion, and reduced effort do to simplify an activity, circumscribed neural changes further lessen the necessary output of energy.

6. *A Comparison.*—Let us once more compare the process of writing in the day of the child's early apprenticeship with the state of affairs when he has naturally done learning. To begin with, there was ceaseless bustle, now there is none. Through considerations now well known to the reader, the amount of attention needed has been enormously reduced. The different parts of the normal routine are remembered without strain ; difficulties which are likely to occur the child knows how to meet ; he is no more interested in the process itself ; conscious error is absent ; there are no problems, or almost none ; what is unessential has been forgotten ; less energy is expended ; and, lastly, the development of skill and muscle has further reduced the strain upon the attention. That is to say, effort has been toned down in four ways : (1) He remembers with ease ; (2) he has forgotten what is unnecessary ; (3) he has regulated the output according to the actual demand ; and (4) his developed nerves and muscles work more efficiently with less effort.

There is, therefore, nothing mysterious in the seeming absence of complexity in routine. The energy required being largely reduced, the process is simplified in proportion.

7. *The Result of Liberating Attention Energy.*—Along with the changes which we have been describing has gone a silent transformation which we now proceed to state. We know that there is present at any time an equal amount of attention energy. If we require more energy in one direction, we have less at our disposal in any other direction, and *vice versâ*. Hence, as the process of writing is being simplified, the attention energy set free will be employed in other ways ; and as the routine process reaches its maximum simplicity, the mass of our attention energy must be redistributed.

After slight practice we can spare just enough energy to look around us. Later on we may possess sufficient to hum a tune, and later still, to pursue long trains of thought. As, at the commencement, there was no attention energy available except for writing, so at the finish our writing makes no practical difference to the general current of thought. We have observed how in the struggle for life and comfort thoughts drive each other off the mental stage. The same procedure we encounter here in a modified form. At first, when a little energy is set free, when a kind of attention vacuum is created, and our eyes wander, there is embarrassment and the balance is disturbed. We are confused in our work and confused in our outlook. As more and more energy is set free the effort to divide the attention is repeated, and, persevering, the endeavour becomes more and more successful. Finally, we closely attend to our writing while also attending to other matters. Just as nature "abhors a vacuum," so attention energy ever strives to be fully employed. A simple experiment will provide a further illustration of what we are attempting to elucidate. A man takes two pebbles. He holds them in one hand. He throws them up into the air successively. He tries to catch them in the same hand as they successively return. At the start of the experiment he is confused. He has too much to attend to. In trying to follow the eccentricities of one pebble, he follows neither and catches neither. It seems impossible to him to attend simultaneously to both. While he is thinking of one, he neglects the other. His adjustments for intercepting them fail. Instead of closing his hand for an instant when the pebble touches it, he watches the other pebble. Instead of watching the other pebble, he closes his hand. But as he proceeds with the experiment the attention is thoroughly divided, and he acquires the coveted skill. After additional

trials he might be successful with three pebbles, or attend to the two pebbles and be thinking of other matters.

Thus it happens that while we are engaged in writing we are usually engaged in other directions also. When we are copying we may be listening to a conversation, if, perchance, our superfluous attention is not bent on something more serious. Gradually we have accommodated ourselves to write while following other lines of thought. On the one hand, interest urged us to disengage part of the attention; on the other, the presence of liberated attention energy sought an outlet.

8. *Does an Organic Trend ever Become Automatic?*—(*a*) Both the process of simplification and the acquired power of pursuing our thoughts independently may have suggested that writing comes to be in time a mechanical act where attention is superfluous. On the other hand, we saw that there is no fundamental change, only a simplification. A further proof of this, if needed, is easily forthcoming. We know, roughly speaking, that the attention energy is at different times equal in amount, assuming the normal waking state. If, consequently, we were absorbed in thought, we should expect that writing would proceed with difficulty and finally cease. This actually takes place. We cannot be completely absorbed in anything while writing, for divided attention is only possible when the attention energy is divided.

(*b*) A purely mechanical act would be one in which no sensations were present. This is not so with any habit, however confirmed. In learning we experienced sensations to begin with. These sensations grew gradually fainter. They are now so dim that they are hardly perceptible. But though not vivid they serve their purpose. They are still of the same use as before. Their unobtrusiveness only indicates a reduction in the energy employed; in other words, it records that less energy is wasted. These sensations represent physical activity, and only when that ceases do these sensations disappear. They are the index of work done. It will be found true that sensations are never missed from an activity which at any time was followed by them. It is also probable that wherever the influence of the unimpaired cerebro-spinal system reaches, there we have sensations accompanying physical activity. Perhaps that they are not essential, as is shown in the case of tickling the foot of a man whose spinal cord is injured above the point whence the nerves of the lower extremities emerge; for this man withdraws his foot, though he experiences nothing. But where the activity is central, or connected by nerves with the higher

nervous centres, there we shall find sensations alongside of physical activities.

(*c*) It might seem plausible to surmise that every step in a routine process is recalled by the step which precedes it, and that on the first step being recalled, the others follow automatically. The whole process, unless interrupted, would according to this hypothesis, run down like an alarm-clock. It would be as with a row of bricks appropriately arranged. As the top portion of the first brick received a push in the direction of the other bricks, it would fall on the second brick, which would fall on the third, and so on until the last brick fell. Facts, however, do not bear out this theory. It is not the outward stimulus that calls up the reaction ; for as the stimulus makes itself felt, so, at the same time, the reaction begins to emerge into consciousness. The stimulus touches a brain area where both stimulus and reaction are implicated. There is not one neural disturbance following another ; but one neural disturbance as a result of which we both perceive and act. And, likewise, along with the reaction there is already developing a tendency to elaborate a further stimulus. The disturbance, to state the thesis differently, is never strictly a local one. Hence we must reject the suggestion that routine process is a mechanical step-to-step process.

(*d*) We are bound to go further. With any complex process such as writing, we cannot stop at inconsiderable neural disturbances. We have to reckon with a need which persists throughout. When this is interfered with we cease to write. Such stimulating needs are the source of organised trends of every description, as indeed of every task. They represent a definite neural sensibility which enables the work to proceed. The cessation of the needs involves the cessation of the sensibility referred to, and the latter ceasing, the former ceases. It is this sensibility which conditions the ready reception of the stimuli and the ready reaction following. In the literal sense, therefore, we have nothing atomic or purely mechanical in a routine act like that of writing. We are still dealing with a complex.

9. *Organic Trends and Memory.*—The child is resolved to write the letter "r" more distinctly. Next time he sits down to write he does not remember his resolution. In some instances he knows that he is coming to an "r," and yet again and again writes in the bad old fashion. The explanation of this, after what has been said in the section preceding the last, is not difficult. The child pursues its task independently of other mental labour. He has drilled

himself in not permitting different activities to interfere with each other. Hence the writing tends to proceed along its own lines. A certain stimulus is constantly connected with a certain reaction, and when the stimulus is present, the reaction follows. Just as at first the slightest attention to other matters disturbed the writing, so now, on the contrary, it is extremely hard to disorganise this activity. We are so used, while writing, to ignore the general stream of thought, *i.e.*, not to allow the least interference with routine, that even thinking at the proper time of the desired change is sometimes not adequate.

Usually we check ourselves when we think checking desirable. But frequently we do not remember our resolutions at the right moment. This has an additional cause besides the one we have mentioned. The idea of the correction is not so firmly fixed nor so ready to pass into action as the fault we wish to remove. A slight stimulus would, therefore, recall the latter and not the former. Such is the normal reason why we often remember the correction after the blunder has been made, and why we as frequently fail to recollect our resolutions.

10. *The Place of Exercise.*—We will now determine the place of exercise, as apart from other causes, in the organisation of the process of writing.

(*a*) I have for many years been writing. I shall presumably write for some years longer, say twenty years. I shall, therefore, have an additional twenty years of exercise. Will my handwriting then be better, and shall I then be writing more rapidly, supposing mine be a normal case? Hardly. The probabilities are that twenty years of added exercise will make no difference worth speaking of, nor would fifty years' exercise even, setting aside the influence of old age. Exercise has no absolute value. A statement to the effect that "improvement in the quality and the speed of writing is in direct proportion to exercise," would be incorrect, as is also the milder form that "exercise strengthens faculty".

(*b*) In the elimination of what is erroneous and non-essential time rather than exercise is a favouring factor. While the former offers opportunities for the detection of improvements and mistakes, thus hastening the evolution of organised trends, the latter remains neutral as regards these changes.

(*c*) Memory is slightly strengthened, and development, to an inconsiderable extent, assisted by means of exercise.

(*d*) Only effort, persistent in its nature, causes sensible improvement in body or in mind. When effort is not

strenuous, or too strenuous, advance in ability is practically out of the question. Nor is constant progress, speaking generally, possible. A river incessantly wears away its banks, and wind and rain never leave off denuding a mountain. Not so with organic reaction. Exercise is not incessantly producing changes in direct proportion to effort expended.

11. *The Place of Judgment.*—We described the evolution of a routine process. We sketched the causes of that evolution; but we have not, we hope, suggested that the method is such that all men end in writing alike. The hands of a watch report progress automatically. The evolution of an organic trend is not of such a nature. The use of judgment, of which we will now speak, is a factor which cannot be too highly appreciated.

Suppose a man learns to write without a teacher, and under compulsion. He will surely make numerous blunders, while the mode of learning will be most difficult and prolonged. When the routine stage has at last been reached he will find that in comparison to those well-taught, he writes badly, makes many serious errors, and spends more energy on the writing than is necessary. He will also discover that a variety of problems are met by him unintelligently, and that many movements are not so simple as they might be. Organic reaction as such in no wise implies perfection. While one is a splendid writer, another may be a wretched scrawler. From the point of view of perfection it would be suicidal to consider time, exercise, and effort, as the only essentials in intelligent development. There are hosts of aged workers who are stupid, clumsy, slow, in spite of a life spent in a special class of work, while there are others more favourably situated, who do the same work better and with greater speed, although they have had but a year or two of practice. Efficiency would be almost universally absent if we acted upon the belief that with the lapse of time bad workmanship disappears or good workmanship evolves.

Let us assume that a young man is anxious to write well. He procures a well-tried teacher. Of beginners' blunders many are common, and others are infrequent. His teacher, through foreknowledge, prevents the majority of them from occurring, and speedily reforms the others. Few mistakes are permitted, and none are allowed to sink so deep that they are difficult to uproot. The pupil stands no risk of injuring spine, lungs, or eyes. He has not repeatedly to discover that he is on a squirrel track.

Thus far the teacher's help is negative. On the positive

side he communicates the shortest, the simplest, and the most effective manner of writing. He ensures that there is little to learn and less to unlearn. He reduces labour and perplexity. He knows just what should be done, and insists upon that alone. The consequence is that his pupil acquires the art of writing perhaps with one-third the trouble and in one-third the time expended by another who, though otherwise his equal, has had no teacher or a bad one.

Exercise offers no guarantee that we perform every movement in the most economic manner. In many an organised trend in which the parts are not obvious (and in most they are not), movements are executed circuitously. A life-time of exercise may make no difference in this respect. The most direct way is not revealed mechanically and is very often difficult to discern. A careful analysis will frequently show movements to be superfluous. Sometimes the prevailing method is cumbersome and wastes time, trouble, and effort. Sound training alone, not mere training, can produce the effect we should be aiming at. As with circuitous activities, so with the absolute amount of energy expended. Most men employ in organic reaction more energy than is needful. The initially superfluous output becomes the normal output, and thus part of a man's energy is frittered away. Thoughtful analysis alone indicates the proper quantity of energy demanded. Time should never be wasted. We need never cease learning or improving. Alertness, deliberate observation, and the study of others engaged in the same or a similar pursuit, all tend towards progress.

Not exercise but judgment is the most desirable. Judgment is also more important than time. Double the former and you quarter the latter. In many an instance half an hour's conversation with the right individual will do more than years of plodding. A wise man will learn nothing at haphazard, and introduce judgment into every activity. The child who learns to write, benefits in every way by the employment of his own and others' judgment. He ought to be taught that exercise alone will not bring him to his goal.

12. *Why is it Difficult to Influence Organic Trends?*—The learner has ceased to be a learner. The organic trend is fully formed. The apprentice has reached a stage at which he writes without troubling himself about the how of writing. Suppose he arrives at the conclusion that he soon feels tired when writing, while others do not. Suppose he decides to make the necessary changes which shall enable him to write without rapid exhaustion. The ideal procedure in such a case would be, first, to remember, and then to remove the

cause of the worrying sensation. As we have learnt in section 3, this homely method is not open to him. There is nothing in the memory that will suggest the cause. All temporal or logical bonds are forgotten. He does not know what causes what. He does not remember what he learnt or how he learnt. He is hence bound to investigate. Oblivion makes it difficult to introduce changes in routine.

He proceeds, then, to inquire. Perhaps one movement needs changing, perhaps two, perhaps three, perhaps twenty. Possibly the immediate source of discomfort is the result of the foolish position of one part of the body, and that of some other part. What is it, and which is it? He will not find it easy to decide. Perhaps one seemingly well-calculated change is introduced, and nothing satisfactory is perceived. Perhaps some unexpected effect results. Perhaps the change makes matters worse, and he writes more awkwardly than before. He tries a fresh position or movement and still another, but without success. Perhaps he remedies the evil, and introduces a greater in its place. No horoscope can be cast as to what will or what will not happen. He is dealing with what he can only understand when he perceives its effects.

To illustrate our illustration, let us take an experience with larger outlines. Strolling about in a poorer portion of London the following may be observed. The heels of those we are scrutinising are worn painfully low on one side. Suppose one of these people wished to remedy the defect. Merely to make a resolution that he would walk properly would be useless. If he tried to think of his walk he would most likely find nothing that suggested a solution. The same would probably happen if he proceeded to observe himself or others. Being baffled he decides on experiment. He walks somewhat differently to what he is accustomed to; but there is no apparent result. He alters his walk again. It seems to him that the change is an improvement. He advances a further step. Matters are worse than they were to commence with. He may thus go on experimenting for years and not achieve his purpose, or he may spoil his walk in other ways. It is not that he is unaware of what baffles him, but he cannot recall its cause effectively. In moving a step there are quite a multitude of motions with their accompanying sensations. These sensations pass through his mind. If he is attentive enough he perceives their presence; but he cannot hold them steadily before his mind or recall them at will, except after special practice. Even then, as one motion determines the succeeding ones, only the recall

of a series would be of assistance. Such a feat would be too much for a trained psychologist, let alone for an average man not practised in introspective analysis. Hence men, as a rule, do not experiment much. They discover how troublesome it is, and almost invariably decline the invitation.

Ordinarily, then, when it occurs to any one that he might improve his method of writing, he lightly passes over the suggestion. Perhaps he pictures to himself the labour it will occasion before he achieves his purpose. Perhaps, and this is more likely, he dismisses the thought because he has dismissed similar thoughts before.

Suppose, again, that a man does know what tires his hand in writing, and also what attitude is the most desirable. He has not therefore surmounted all difficulties. He must forget the old way, and learn the new. Now we have seen how independent a routine process normally is of other routine processes, or of the general current of thought. Hence he has no mean task before him. Each time he wishes to write, and all the time he is writing, he must be thinking of the alteration he intends making. If he neglects to do this, he fails to work himself out of the old ruts. Speaking generally, so firmly fixed are the existing arrangements that often months or years pass before they are forgotten and the new method has been assimilated.

Other difficulties arise. He might be preoccupied, and forget the experiment on which he had embarked. When a favourable occasion again offers, the idea of the experiment is not thought of and he unconsciously treads the old windings. Perhaps months afterwards he recollects that he had had a notion of introducing some alteration. He repeatedly forgets his aim for hours, days, or weeks, as the case may be. Hence the hope of success recedes. This induces a lowering of interest, despair of final victory, and disgust. But grant that he has persevered and succeeded. The gain is not patent. If each fault he wished to grapple with took a long time to overcome and entailed much trouble, he could at best correct very few slips during a lifetime. Besides, he could not think of altering several faults at a time. And one more difficulty. Suppose a man makes up his mind to retire at 11 P.M. He carries out his resolution. In due time, as explained, the resolution is forgotten. Then some opportunity presents itself to stay up later, and slowly the time of retiring is changed again. Such reversion to old habits is frequent, and must be reckoned with.

Though sweeping changes in adults are almost out of the question, and though innumerable organic trends can only be

transformed at the cost of much time and trouble, there are yet exceptions to this rule. Many an action which we have persisted in for years, as we shall see, may have its character altered at once, while various activities may cause little trouble in the changing. In some instances an intelligent method may rapidly produce far-reaching effects, and the introduction of a particular trend may scatter a multitude of objectionable activities.

Changes in routine are, as a rule, hard to accomplish. The lesson to be derived is elementary indeed. We must at the outset ensure that we do a thing well. We must prevent the ripening of objectionable activities and foster the development of such as mature reflection approves of. In practice, taking life as a whole, the alternative to obviating the growth of questionable activities is to bear with them stoically when they are formed. Attempts at general reform have failed and must fail.

13. *Early Education.*—To avoid the necessity of having to recast a multiplicity of activities, we must begin rational education with the infant. By the time the child is of school age, the general outlines of his nature are fairly settled. It is, for many reasons, hard then to change his character or to remove serious defects. Only the most thoughtful and the most thorough-going attempts will successfully counteract the neglect of the previous six or seven years. The reasons for laying stress on the first three or four years of life are as follows: (*a*) A child is physically, intellectually, and economically dependent. We possess, therefore, undisputed freedom to place him under conditions favourable to the development of desirable activities. (*b*) A child's memory is weak. Even when he is compelled to do a thing, he soon comes to do it spontaneously, having forgotten the grievance of compulsion. (*c*) A child forgives as easily as he forgets. He nurses no resentment. (*d*) The child's mind is not sufficiently ingenious to plot against its educators. (*e*) For the same reason as in (*d*) he can seldom understand or foretell the educator's intention. (*f*) A child has no deeply-seated objectionable activities. (*g*) A child easily acquires desirable activities, and as easily shakes off objectionable ones (and *vice versâ*). (*h*) When an activity has been formed early in life it displays the maximum capacity of developing into strength and efficiency. Such activity is very difficult to unsettle in later life. The opportunities of early training being so numerous, the earliest period should be made the most fruitful for educative purposes. It does not follow from the above that a human being's plasticity draws to a close at the age of six

or seven. The plasticity passes slowly, and can hardly be said to cease when we reach maturity. Skill, which is acquired with slight effort at fifteen, is impossible to the man of thirty-five—compare the respective capacities of these two ages for shorthand. Again, what the child of six can learn with little trouble, the boy of fifteen may be debarred from acquiring—efficiency in violin playing is of such a nature. In the evolution of routine the stage of general development must be borne in mind. As we grow older, deeper changes or fundamental acquisitions are less and less possible. Not by any means an insignificant factor in this staidness of age is the type of mind which the mature man evolves and the conditions under which he lives. Where the circumstances and the type are similar to that of the young child, there we expect and find similar results.

14. *Each Organic Trend is Based on others of its Kind.*—In analysing the evolution of the child's power of writing we assumed that we start with a non-organised process and end in an organised one. At the commencement, we were face to face with complexity; at the end, all was simplicity. There seemed to be a definite initial stage and a definite winding up. All these assumptions are far from being defensible. Strictly speaking, as we shall see at once, there was no beginning.

In writing we make certain muscular efforts which, we previously noted, are guided by recollection. If we neglect the general muscular memories, there remain only random movements; but we do not start with such in learning to write. We are consequently making use of existing systems in the formation of a new one. Organised trends, in other words, are only new to a certain extent.

Let us realise this more completely. A person is not used to lifting weights. One moment he exerts more energy than is needed, the next less. He sees a weight, but being ignorant of the precise effort required for lifting it, he mistakes the possible result of his efforts. Yet, after amassing experiences, he almost always puts forth the proper force. A glance recalls the appropriate effort, and the merest attempt at lifting suggests the weight. Picking up a piece of aluminium, the specific gravity of which we are not acquainted with, we find we have exerted ourselves too much. Moving a *papier-maché* table we feel, owing to our mistaken idea of its weight, a peculiar sensation caused by its unexpected lightness. We measure off the weight of an object by memory (sec. 5). We graduate our output of energy according to experience. Very early in life the child learns to know

the resistance of material objects, *i.e.*, how much effort it requires to move them or to raise them. When the child then begins learning to write, the majority of muscular efforts which will be required are already part of one or more organic trends. This knowledge he incorporates solidly into the action of writing. He has not to experiment afresh, for experiments have been long done with. If the knowledge of every movement had to be freshly acquired, the process of learning to write would assume monstrous proportions. Still, as in the instance when we lift a piece of aluminium for the first time, we have in learning to write a few special experiences. These are the new constituents in the trend; though they themselves are based on previous experiences.

As with effort, so with ingenuity. Previous to learning to write the child had years of training in skilfulness. The intelligence required in that branch of acquirements is only specialised intelligence—the old skill, plus a fragment of new skill. Various tasks which demanded little art, and resemble previous experiences, are performed accordingly by a simple reference to memory, while other activities, necessitating much specialised ability, are only partially assisted by older experiences. In any case, a set of general principles which result from growing experience help in the solution of each difficulty. Thus, with one person, a problem will be hard to unravel, while with another the solution is given by memory.

A like criticism applies to the part played by interference. The child has from a tender age suppressed uninteresting thoughts and dwelt upon interesting ones. This power of shaping a routine process is not a new power. It is itself organic and capable of improvement. If it be well developed, thoughts are more easily dwelt upon or dismissed. It is constantly being affected by experience. Hence it has nothing new to perform when we are learning to write. It is an established activity, more or less polished by use, memory, and judgment. In a somewhat fresh application, the old mechanism is slightly improved in a certain direction.

The argument may perhaps be forcibly brought home by considering the following instance. One man is in splendid condition as regards strength, skill, and judgment. Another man is not in good condition at all. Both are set to learn a business in which the three qualities mentioned are required. The former will learn it with ease, the latter with difficulty. The former possesses much of what is already required in the business, the latter does not. The former recognises much that is not new to him, the latter very little. Countless

difficulties the former has overcome in other connexions, and thus many perplexities do not exist for him.

The developed mode of writing can, therefore, only in an arbitrary sense be said to have had a beginning. The mass of what is organic was so before the child learnt writing, and remains organic alongside of the special capacity we are considering. We cannot hence consistently speak of commencing to learn to write. Or, rather, when we express ourselves thus, we must be clear that we are utilising the components of other organic trends, and that we are contemplating a compound of new and old tasks. In the new activity we have a specialisation of old activities.

15. *Each Organic Trend forms a Basis for others of its Kind.*—In learning to write we start with organised reactions. Naturally, when we have learnt to write, this new trend (the strength, skill, and judgment acquired) forms a partial basis for other trends. Thus a sign painter or lithographer profits from knowing how to write; the position we place ourselves into when writing may be advantageous for many purposes; the way we hold the pen may assist us in drawing; and writing itself might possibly be considered a department of drawing. We conclude, then, that the mechanism of writing is not self-contained, since it presupposes organic reaction, and serves as a basis, or forms a department of, other such processes.

16. *What is an Organic Trend?*—We have analysed at full length a particular example. In the last two sections we saw that an organic trend is not self-contained (if we allow that writing is a fair type of it). How then is a routine process circumscribed? What are its distinguishing marks? Is it a bundle of such processes? Or is there no such thing? Or is the idea of a trend a mere generalisation of convenience?

A man wishes to know the time. He pulls out his watch and looks. The hand points to two o'clock, while the hour must be about eight. Then he recollects that his watch has stopped for some days. The compass of this trend is very limited. Its development must have been correspondingly simple. As there is but one complex movement, and that one common to other movements, he has had next to nothing to learn. Even the fact that he takes hold of the watch by the ring, is matched by similar experiences. What is new is that he accustoms himself, in the manner explained in section 8, to look at his watch without allowing the action to interfere with his general current of thought. Even this is overstating the case. The element alluded to can hardly be called a new one. The whole process is primitive. We are constantly

engaged in doing with but the slightest interference what might be called fresh things, so that all we have new in this action is the somewhat greater ease with which the attention is divided. The intensity of feeling accompanying the suggestion of the act is reduced to an inconsiderable extent.

We may speak of the climbing over a stile as organically generated. Yet that action embraces perhaps not one new feature. A man climbs over a stile as he has been accustomed to surmount similar obstacles. Thus fifty different activities might be considered as fifty distinct sets of organic reactions when there is in reality but one. In the instance of the stile we are considering, not at all a simple one, there is no learning, no mistake, no oblivion, no effort of attention. The man scales the hundredth stile with perhaps no greater ease than the first.

Consider a man's general bearing. May he speak of it as organic? Perhaps he saw some one bow in a certain fashion. He admired the elegance of the gesture, and when he had to bow, he recalled his model. Or as he grew up he bowed as his sister or brother did, without deliberation. Or he adopted the various portions of the bow from various persons, not connecting in consciousness the different movements he had imitated.

Thus with the smile present on his lips; the manner he holds his head; the way his eyes meet others' eyes; the normal expression on his face. In short, he may speak of his total bearing as a definite settled whole; as acquired deliberately and in a logical order of which he is precisely aware. As a matter of fact, a mass of independent units are included in our bearing. A small portion of it, such as the manner one bows, may have been, as shown, acquired at different times and independently. More than this. Perhaps the bow is not a stable quantity. Parts of it may vary, or the whole of it change, as the outcome of a multiplicity of causes. So with the whole of a man's bearing. From the point of view of a careful analysis he cannot speak of his bearing as one trend, acquired and fixed in a deliberate order. He has before him rather an indefinite complex. A routine act is not bound by any dimensions. It is not independent of other routine acts. It may consist of a single elementary reaction or of a multiplicity of reactions.

The exact turning at which an activity becomes organic cannot be decided, mainly for the reason that no such turning is imaginable. Its hold even varies. Looking at a hat, we recognise it instantly as being a hat. How far a set of reactions can be simplified and apparently detached from the

general consciousness and control is a moot point. A trend might, especially when the organism is predisposed to it, require very little effort in the acquiring. The apparently mechanical opening and closing of the eyelids, for instance, resembles an activity such as writing. In simple routine the stimulus may be so faint that though it be recognised sufficiently to be acted upon, yet it is too faint for full perception. Moving the eyelids either consciously or unconsciously yields indistinguishable results. This we should expect. The process is so elementary that deliberation or absence of deliberation makes no appreciable difference. Opening and shutting my eyelids deliberately as I am writing, I cannot discover anything in the action that would differentiate it from a normal trend. No perceptible feeling of effort is traceable. There is only the sensation which accompanies the movement. There is present probably on the mental side, under average circumstances, a feeling of fatigue which is relieved by shutting the eyes. This feeling is very faint; but ordinary organic reactions have often no more distinct feelings accompanying them. In the case of moving the eyelids the act, there is every reason to believe, is initiated at birth, currents of energy being easily discharged in that direction. How far respiration and other similar processes may be classed as routine, the reader must decide for himself. Probably no distinct line can be drawn. The mere absence of perceptible effort, even the absence of an observable evolution in the action, apply to many processes which would not be looked upon as inherited. Every trend, by the very fact of its existence, must be considered as implying at least a modicum of predisposition. Hence the difficulty of drawing a line of demarcation.

If routine actions tend, in one direction, to merge into bodily functions, they tend to merge into deliberateness in another. What indeed is to divide these classes? As we reflect we become convinced that *a vast number of actions are repeated, that the majority of our activities resemble each other, that the various new tasks we perform are new but to an insignificant degree, and that certain principles elaborated by experience lie at the foundation of activity as a whole.* It would be safe to state that the overwhelming mass of what is new is more or less routine in character. Again, not all routine processes require little effort. So great are the variations in this respect that while some activities scarcely make a call on our intelligence, our attention, or our energy, others exclude nearly all unrelated effort and are most fatiguing.

Repetition of a process is no trustworthy guide as to the

extent of the stability of an established line of action. The following illustrates one extreme. A man is required to do something which he has not attempted before. A similar cycle of actions has to be attended to about every three minutes. An instrument which he needs he puts in an awkward place. During the first quarter of an hour the mistake is pointed out to him. He agrees that he is wrong. He appears anxious not to repeat the blunder. Though only three minutes intervene between the time he is corrected and the time he is to correct himself, he yet persistently errs. Often he declares he will put the instrument in the right place, and perhaps a second or two afterwards he becomes completely unaware of his declared intent. Though his eyes sweep across the object lying in the wrong place, he does not notice it. Many like instances might be cited proving the fact that mere repetition, or extent of time, are not essentials in the evolution of particular organic trends. The argument grows self-evident when we reflect that present activities are based on preceding activities, and that all action is more or less organised.

While the slightest exercise, as we have just noted, may firmly establish an activity, sometimes years of constant exercise will not accomplish that object. I recollect performing for years, and day after day, a certain action in a certain manner. Then I observed some one proceeding more intelligently. I resolved to imitate and found no difficulty in breaking with a settled custom. The next day a new era was inaugurated. No effort was requisite. No relapse ensued.

The ease with which an organic trend can or cannot be removed is not in proportion to the number of times the action has been repeated. For scientific purposes this must be borne in mind. For practical purposes it is nevertheless well not to forget that routine reactions require normally a certain time to evolve, and that a vast aggregate of activities, once they become fixed, are simplified, require little effort, and are hard to remove. Though no rigorous and comprehensive statement can be drawn up, it is advisable to bear in mind the general drift of the conclusions here arrived at.

17. *All Thought is Organic.*—We analysed a particular routine case. We attempted, by a general survey, to arrive at a conclusion as to its essential nature. Now that organic reactions cover an enormous area in the province of physiological action must be evident. But what position, if any, do they occupy in the more exclusively mental realm? We have reserved the answer to this question. The examples chosen were, generally speaking, purposely such as implied

motion. That was done so as not to prejudge the problem which we are about to consider.

Let a man imagine himself walking along a lane, playing with a ring on his finger, scanning the scenery around him, and mentally rehearsing a tune. When he first endeavoured to repeat the tune (or a tune) could he have repeated it as easily as now? Not if he was a normal individual. Some practice was necessary, equivalent to that we laid bare in the analysis of writing, before the tune could be repeated with so little effort that there was not even an awareness of rehearsing it. We meet here with a routine act, similar to that of writing. An important new element is this. The immediate stimulus and the reaction are both present in the mind. The tune proceeds within. One thing within the mind suggests, or is followed by, another in the mind. When we first thought of rehearsing a tune inaudibly we could not help remembering irrelevant, unessential, and erroneous topics. By a process previously explained these are eliminated. We encounter here also development, and the tune, as we might expect, runs smoothly, without interruption, and without much demand upon the attention.

Organic quality is still more clearly evinced in arithmetical practice. When I am asked "What are five times five?" I answer without delay "twenty-five". So, in adding up columns of figures, not only is there no hesitancy, but I add three or four figures at once with a like ease. When I was a child, things did not proceed so smoothly. I employed my fingers, my buttons, etc., to assist me in performing a simple sum, and even then I was more often wrong than right. Immense effort yielded little satisfaction then; but to-day little effort harvests immense results; for every possible instance of a certain type has been memorised. When I want to know what 1 and 1 are, I do not cast about for a reply, I answer forthwith, 2. Similarly with rules referring to mathematics generally. Solutions of often-met difficulties become matters of organic memory.

We saw that in a bodily trend we do not always obtain so elementary a solution as we desire. The same thing happens, and is of special import to us, in matters mental. Suppose a man is asked "What are 18 times 19?" (We will assume that he does the sum mentally.) He starts "10 times 18, 180; 9 times 10, 90; are 270; 9 times 8, 72; are 342"; or "20 times 18, 360; – 18, are 342". Though the answer is reached circuitously, the successive steps are yet rigidly connected. Every move in the total act is remembered like the moves in any common bodily routine process. There

is no halt between point and point, whether we have two steps or ten. They follow each other uninterruptedly. Their number does not affect the nature of the process.

There are many occasions in mental as in physical routine when we take a fixed but relatively round-about course. Some one asks how many days September has. His question is scarcely finished when I begin (unheard) "Thirty days hath September," (aloud) "Thirty days". I do not ponder, nor do I answer directly. There is neither doubt nor certainty present—only what has been described.

We shall revert to these intermediate links. Meanwhile we wish to take a more general view. Do organised reactions enter into thought proper? Is there an evolution of lines of thought? Does the process of judgment evolve like the process of writing? Are observation and imagination subject to training? Does the training, if such there be, pursue the same lines as the training involved in trends such as writing? However bold it may appear, we must answer the questions in the affirmative. Let us consider the reasons which induce us to take this course.

Suppose a man thinks that it would be best to dismiss certain impracticable thoughts, immediately they occur, by the turning of his attention into other channels. An opportunity arrives, he remembers his resolution, and carries it out. After a period of practice the resolution is forgotten or not referred to; but whenever anything impracticable suggests itself he dismisses it immediately. The resolution forms no link between the objectionable thought and the act of dismissal. As that thought appears, so it is thrust back. There may be, after a time, entire ignorance that certain thoughts are dismissed. The man may, for instance, either deny that such is the fact; or he may give some plausible but inaccurate explanation. As with physical activities, so with mental, a resolution need not be verbally conceived, nor need it be, at first, of wide application, nor need the sum of the consequences be apprehended. Much of a man's thought is as dim as the twilight, and hence there is often hardly anything definite to recall. An organic trend, such as the one just described, is an essential in thinking, and yet there is no perceptible difference between it and a physical activity of an organic nature.

Consider another example. Some one notices that when authors say, "There are three (or four, or more) ways of accounting for this phenomenon," they are frequently wrong. So he makes it a rule to question every numerical statement. After a time his resolution forms no part of the thought

process. Whenever he chances to meet such an expression, he ignores it, or quietly turns to investigate its correctness.

Again. Say a man thinks that it is important to observe objects directly, carefully, repeatedly, for a prolonged period, and under differing conditions; and to compare the observed objects, in the same manner, with different objects of an apparently like or similar nature. He may also have decided to extend cautiously any simple proposition which he draws up or any general fact. He may have determined to consider in discussion one item carefully, rather than skip from subject to subject. He may have made other wise or stupid resolutions for the conduct of his understanding; or perhaps he was taught these at home or at school; or perhaps he gathered them one point here or one point there; or perhaps he imitated that which appeared to him to be the method of his tutor's thought. In any case, the act which will follow the adoption of these resolutions will be of the same nature as that delineated when we traced the evolution of writing. The road of development will be strewn with many difficulties and pursue a devious course. In the end much of this man's reasoning will be performed in a quasi-automatic manner. The proposition or fact will be exploited in the fashion referred to. He will attend keenly, experiencing perhaps a great strain without being conscious of it, and disputing the fact of his procedure a minute afterwards. Recollection of theories stands in the way of rapid thought as of rapid action. Much of our limited energy would be wasted by attending to them.

The preceding examples show that experience and training impose on the mind as on the body. From infancy onwards a multitude of routine processes evolve; and these make up our character as practical men or as theorists. Apart from such activities it would be as impossible to conceive of intellectual labour as of bodily labour. Mental efficiency depends on properly developed trends. Given mental life of any kind in the child, and the course of events inevitably transforms that activity into an organic complex. Our modes of thought are thus necessarily organised.

It will be said: Granted the existence and the importance of trends in the mind, we still know that they are the result of non-routine activity. The business of the mind lies in forming these. They themselves are but the lifeless tools of the ego.

Analysis is not satisfied with that answer. We saw how in physical matters one routine act really grew out of others of its kind; how physical activity as a whole was organised.

We must, therefore, urge that every mental trend is the offspring of other trends, these simplifying as we retreat to infancy. Let us make sure of the meaning of the statement. In a mental series where we blunder along, vexed with doubts and difficulties, do we encounter nothing but organic reaction? When we learn our algebra, or our geometry, is there in the process of acquisition as much routine as when we know them well? However paradoxical it may appear, we answer Yes.

We observed already that the number of links in an act leaves the question of their possessing an organic basis unaffected. Rationality is no fixed attribute of such an act. This we have seen holds true of physical activities. Now all that we have to face in a difficult mental series is a large number of steps. A man is asked, "How many days has September?" He answers promptly, "Thirty". Or he says perhaps, "Let me see. September, did you say? I don't think I remember. I'll try, though. I believe there is a doggerel verse that might help. Confound it; I can't recall the verse. Yes, I can. 'Thirty days hath September.' I thought I could recall that verse. September has thirty days, my friend." It would be of the greatest interest exhaustively to analyse, if that were possible, such a string of thought. Here we can only state that every turn enumerated is of a kind and a class that we have employed in our mental experience times out of number.

To wonder, to be surprised, to doubt, to feel convinced, are all mental phases which have their place in general routine. The wonder follows immediately on something it has followed before, link on link, as we should expect. The multiplicity of links raises no problem, nor does the failure of the act to attain its end affect the matter. The fact that we have been thinking for years makes it evident that thought as a whole is a tangle of organic complexes. We doubt, as we have been accustomed to doubt. We show implicit faith as we have done on previous occasions. We meet the various facts of life from settled, often contradictory points of view. Occasions being similar, we tend to react similarly. The cast of a person's character is partly traceable to this fact.

It will be said that active consciousness is not organic when we are conscious of observing something. Why not? Are there not degrees of consciousness? Is it not past experience which decides when we shall be conscious or not? May we not be clearly conscious, and be quite unconscious that we are clearly conscious? Do we not frequently attend closely, and yet, because of routine, forget the fact almost

instantly? What does consciousness imply at most? That what we do is thought of in relation to other things; a heightened feeling and concentration which makes recollection of what is observed easier; an idea of self; one thought coexistent with and referring to another; a directing a part of the attention to something we are or have been attending to. Active consciousness is consequently liable to become part of an organic whole. For the same reason, man's self-consciousness varies with training and with the environment.

It may be thought that the possibility of being freely remembered is not predicable of organised processes. This is a mistake. Few settled tendencies there are of which a part cannot be freely remembered. Many there are, such as the case of known melodies, where the whole is necessarily remembered. Some bodily routine processes are often of a nature demanding recollection. On the other hand we find that the mental machinery as a mass is not open to inspection.

It will be urged, Surely an obvious difference remains to be accounted for. To this we agree. While holding that all activity, mental or physical, is organic, we may yet distinguish. There are, broadly speaking, certain trends whose business it is to elaborate others—tools to furnish products, or tools to create tools with. When we desire to arrive at a conclusion, the machinery starts with the very desire. Sometimes the mechanism succeeds, sometimes it fails. As the machinery is brought to perfection, so the product is turned out with ease and certainty. Just as the process of writing is perfectible, and gains by the judgment expended upon it, and this by virtue of its organic character, so the processes of thought are perfectible, gain by the judgment (which itself is routine) expended on them, and this by virtue of their organic character. From the point of view of special problems one kind of process may be called routine and the other not. It depends whether we are viewing a product as machinery or as the result of machinery. Thus, for convenience sake, some actions may be called secondarily organic, although they display an imperfect adjustment of means to ends. Such are activities connected with trades, professions, amusements, and individual pursuits generally. Because these trends are not acquired by all, they have attracted the attention of superficial observers. Trends which are less open to scrutiny may be dubbed primary.

18. *The Psychological Method.*—If our analysis of organic reaction be correct, then we are obliged to draw important conclusions as to the proper psychological method of investi-

gation. An organic trend means a simplified trend—one where all that is unessential is rejected and forgotten, where effort is reduced to a minimum, where the present is treated in the light of the past, where the bonds of time and order are absent, where reaction accompanies its customary stimulus. When we, therefore, speak of reasoning and thinking, or imagining and willing, or feeling and pleasure-pain, and allow that they are routine activities, it at once follows that, by themselves, these processes—though they adequately serve their respective purposes—lack intelligibility from a psychological standpoint, just as the process of writing does. They can only be explained organically, and in the light of the past. Whatever they were in their earlier stages, they are now entirely transformed. To expect to find in them connected and self-consistent wholes, such as our imagination might create, is out of the question. Hence careful observation alone can offer a clue to the various modes of mental activity. To deduce these modes from principles not based on the previous study of the special phenomena is as disastrous as thus to deduce the functions of the brain. The explanations which we have proffered, must, accordingly, be interpreted so as to include the acquirements of children, savages, and animals, as well as the highest flights of genius.

19. *The Cause of Organic Trends.*—The struggle for existence and comfort solves the riddle of the evolution of animal life. Had each species possessed in plenty what it required, the *raison d'être* of transmutation would have been absent. Thus with the evolution of organised thought. If attention energy were indefinite in quantity, all ideas might dwell peaceably side by side, except those which are in their nature opposed to each other. There would be no organised reaction. We should take an interest in everything and forget nothing. But attention energy is very limited, while our desires tend to be boundless. Hence a struggle for the field of attention ensues, as the result of which thought is simplified. On the widest view, therefore, the existence of organised forms of activity is explained by the struggle of varying interests for the narrow field of attention.

III.—PHILOSOPHICAL TERMINOLOGY (II.).[1]

By Dr. Ferdinand Tönnies.

(*Translated by* Mrs. B. Bosanquet.)

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II.

62. The question has been raised as to the causes of the obscurity and confusion in psychological and philosophical terminology. The fact that such obscurity and confusion exists is assumed as given. Hence it is no part of our task to confirm this fact; but we must refer those who doubt it to a comparison of the best-known works, those which excel each in its speciality, of European and American origin. Almost each of these operates in these regions with different concepts, or at any rate with concepts which are differently determined. But even within each particular work, if we examine carefully, we shall not find a consistent terminology; but shall often find that the sense in which an expression was introduced, even the definition which was given with it, has been neglected and apparently forgotten in the course of the exposition, so that the reader who would rest upon it as upon a staff, feels it break in his hand. "If we regard philosophy so far as it comes into contact with the whole of life, we shall feel with pain the misunderstandings which stream from the uncertainty and confusion of language" (Eucken).

[1] The Welby Prize of £50 was awarded to this admirable essay by Dr. Ferdinand Tönnies of Hamburg (Editor, G. F. S.).

63. We will therefore direct our inquiry exclusively to the *causes* of that obscurity and confusion, so that we may then consider the means for improving such an undesirable state.

64. The essential causes will be contained partly in general obstacles, partly in the historical conditions upon which the position and activity of these sciences are based. But these are of many kinds. We must here represent them as they appear to us for the estimation of this causality in their sharpest form.

65. (1) But we must first maintain that not only at the present time, but long ago, these causes have been noted, and this condition lamented. Even if we disregard voices from antiquity, yet since the renewal of the sciences a whole series of prominent thinkers have pointed out the evils of an obscure terminology and investigated the causes. In the sixteenth and seventeenth centuries there prevailed among free thinkers the conviction that the whole traditional pursuit of philosophy at the universities—Scholastic—was worthless. It seemed to them that an empty science of words was taught; and that an elaborate terminology was a covering for ignorance and superstition. Technical words and subtle distinctions they despised. They declared their resolution of shaking off this whole inheritance, in order to penetrate immediately to things themselves. The book of nature alone was held worthy of reading; either they desired, like Bacon, to rise from particular experiences to generalisations, or like Galileo they declared that the book of nature was written in geometrical figures, and that who would understand it must learn the language of triangles and squares.

66. But the mathematical tendency far exceeded the inductive in content and influence; it founded modern philosophy. Now in so far as this tendency set before itself the scientific problem of explaining nature, was indeed primarily physics, it was really greatly aided by the elaborate sign-language of geometrical figures, of arithmetic, and soon also of algebra. The international understanding of the great theorems which hold the ground in that region still depends upon the instrument of mathematical formulæ. In later times again *Chemistry*, which is essentially grounded upon induction and experiment, has elaborated its own peculiar language of formulæ. But even that which in Physics and Chemistry goes beyond formulæ has from a terminological point of view caused little difficulty. This fortunate result is largely due to the fact that in the terminology no one has sought for novelties; and this again may be ascribed to the circum-

stance that notwithstanding the free exercise of abstraction, the things and processes upon which it is based lie open to observation and experiment, or if they are inferred are yet made highly probable. If we are unanimous as to the object of the idea or of the concept we are indifferent to the name, and willingly accept a traditional term, though it may have had another meaning formerly, since no one feels tempted to re-establish this meaning. Or we gratefully accept an expression coined by a master, even if it does not seem well chosen, in order to avoid a dispute about matters of taste. Thus we have essentially attained that which was desired by the bold prophets of modern times. Less trouble has been taken about theoretical logic, hence also about the principles of terminology. Together with Theology, its sister Metaphysic has been pushed into a corner whence they cannot disturb the investigators of Nature. Metaphysic, was regarded as that feigned wisdom issuing in "abstruse distinctions" and incomprehensible expressions, which together with Logic occupied the "pedantic" study of the "barbaric middle ages"—through Logic too it had been thought that something could be discovered about things themselves, which can after all only be got at by experience and calculation. This attitude of the modern natural sciences to the old pillars of Philosophy, points to the fact that the former have achieved complete independence and have become almost completely victorious; still there has not been wanting a development in Logic and Metaphysic themselves, nor yet an *extension* of scientific thought to spheres which are little or not at all accessible to Physics and Chemistry, but which are at any rate as near to philosophical interest. We need not wonder, then, that from that time when Mechanics seemed to lead right into the workshops of nature, resolute investigators have undertaken to apply the instrument to which this result was mainly attributed, partly to anticipatory generalisations, partly to the extension of the sphere of knowledge in general—the instrument that is, of the mathematical methods. Hence the energetic endeavour in the proud and strong seventeenth century to treat Psychology, Morals and Politics, as well as Physics, "more geometrico," *i.e.* to demonstrate. But wherein lay the strength of these methods? Opinion was unanimous as to that. It lay in an unbroken progress from ascertained starting-points; in other words, in the combination of undoubted and indubitable propositions into the proof of propositions which might otherwise be disputed. Some maintained the fundamental propositions to be pure

definitions, others held to the given form of mathematics, and thought that the absolute and highest method being impossible—for there are primitive words which cannot be defined—we must relinquish it, and be content to define all terms of which the meaning is not of itself clear and familiar (*cf.* Pascal). All were obliged to direct the keenest attention to terminology, and to attempt to lay the foundations which were held to be indispensable. There was a tendency to believe that most disputes between philosophical sects would *disappear* if only there were unanimity as to the meanings of words. It was assumed therefore—and daily experience taught it then as now—that many disputants never understand each other at all, and that many a one would come to terms with his opponent if he understood him, *i.e.* if he knew what thought he connected with his expressions: there could hardly be a difference of opinion concerning general *facts* and their nearest connexions, for an understanding which was purified from prejudices, and which depended upon the testimony of the senses and—some would add—upon *inner* perception (reflexion). The difficulty lay only in the fact that every one gives different names to these facts—that is in confusion of language. With more or less outspokenness, with more or less qualification, this was the view of the philosophers of the *Aufklärung:* Descartes, Hobbes, Spinoza, Pascal, and the logician of Port Royal, Locke, Leibniz, Berkeley, Condillac, Wolff, may be named here in a great symphony. Much rarer is the complaint that a *difference* of thought lies hidden under the same expressions. But several of these great authors did not think that the difficulty could be solved by definition alone; they doubted whether any natural language was suitable for scientific ends. The complaints, which were seconded by less famous names, may be easily referred to the three concepts under which the present treatise has considered the natural social will. They pointed out, (1) that names are given to things on the ground of defective knowledge, according to the impressions of imagination, according to *appearance;* (2) that the customary use of language is uncertain and inconsequent, that to a large extent it gives expression more to the contradictory feelings and interests of men than to harmonious insight and thoughts, (3) that ordinary speech, but also and especially philosophical terminology, is full of non-literal *figurative* expressions, whereby confusion and obscurity is exaggerated. The first complaint is directed especially against the classification of organisms. It was the more acute, because according to the

received, best authorised, doctrine the genera and species were held to be realities, in such a way that a real essence, denoted by the name, was common to all the individuals of this genus or species. In fact, the "Realism" of the schools, in the form in which it is generally understood, is closely connected with the view that between things and names there exists a natural and necessary bond; while the nominalistic, freer mode of thought apprehends phenomena in their nameless isolation, and claims the right to name them anew as it sees to be desirable. Practically that means, to distinguish them, to arrange them, to classify them, according to its own point of view, *i.e.* according to observation of the most constant and most characteristic attributes. It may seem that in this way an artificial systematism was favoured, because it alone seemed possible; yet the investigation itself necessarily elicited the thought of a *natural order*, of a classification, therefore, which took account of the really common attributes of every species, genus, and family of plants and animals. It is thus that the great French naturalists worked to establish the subordination and correlation of the organs. The recognition and discovery of an "architectural plan" of Nature, which was investigated in its complete unity and in its manifold ramifications, might indeed, if the old dispute had still survived, have appeared to be a victory for Realism, and has certainly worked in this direction through the doctrine of the "constancy" of species. But at the same time morphology led directly to the evolution theory, which seemed finally decisive in the opposite direction, hence in favour of the old Nominalism. Be that how it may, it may be said with certainty that the progress of the descriptive natural sciences, and in connexion with them, of Biology, has in this sphere overthrown those complaints. From the standpoint of every language—whether its names are derived from ancient science, or are as yet not separated from the popular view—all *modern* classifications of organisms are unnatural; *i.e.* they depend upon methodical study of inner relationship instead of upon naïve perceptions of outer resemblance. Thus they are developed from the rough into an infinite delicacy, and are full of *artificial names*, which indeed also produce a new confusion through the variety and conflict of systems. But this terminology, important as Biology is from a philosophical point of view, we will not consider further here as specifically philosophical.

67. The second complaint, on the other hand, maintains its full force to-day. It refers essentially and principally

to *moral* opinions and concepts. With respect to these, customary language has a characteristic function. Its connexions with natural feelings and habits, but also with popular beliefs and with valid norms of judgment, appear here most clearly. The current predicates which are applied to tendencies, actions, characters and men, belong to the words which express as sole significance, or include in their significance, an affirmation or negation—approval or disapproval—of the speaker. But to this subjective relation they give the form of an objective quality (as is also the case, according to the teaching of reformed physics, in a somewhat different sense, with sensations). Now though in many details scope is allowed for individual freedom, hence to doubt and conflict, yet the principles of moral thinking are so deeply embedded in language, that an offence against them is felt and negated not only as an infringement of customary language, but also and principally as a *moral* crime. The approval or disapproval which is open—*i.e.* made known through words or other signs—whether general or singular, of actions, principles, etc., is itself as an action the basis of *public* approval or disapproval, and whatever may issue therefrom. But the social will of this publicity by no means coincides with that which embodies itself in language and its usage. Of the former there are many kinds, the spheres of which do indeed in many ways cross the spheres of a customary use of language, and here and there coincide, but to a certain extent include it and to a certain extent are contained in it. Social ranks, classes, strata, callings, political bodies, corporations, parties, religious communities, sects, churches, artistic and scientific schools and tendencies—each such group has, at any rate in some particulars, its own judgments as to that which is to be called good or bad, praiseworthy or objectionable—to a large extent also as to that which is true or false. For this too involves affirmation and negation, and not alone because the true is sought and the false avoided, but because by the laws of human nature we generally *affirm* what is willed *as* true, and what is not willed *as* false. Every such group, if unanimous at all, is so concerning that which it *wills*—whether this is expressed in habits, or laws, in confessions of faith or of science; and this gives to each a special usage in the *application* of those affirming and negating names. Sometimes these names, even when they take the verbal form of qualities, are only intended to denote and announce the will, but sometimes they certainly claim to be really applicable to things, hence to be valid also as truths. Now philosophers

have often endeavoured to clear up this state of affairs, and to discover and establish *real grounds* for such naming. But as a matter of fact whole streams of those party-views and principles enter into philosophical systems, so that necessarily a great part of the lamented obscurity and confusion of terminology results from them. To a large extent the direct cause of this lies in the still existing dependence of these philosophical disciplines upon theology; while this itself is only an especially strong instance of the meaning which is attributed to such doctrines in general public life, *i.e.* by every social will. The doctrines themselves are only social will in a sublimated form. Modern society and the modern State have indeed in a certain degree an *interest* in the *scientific* elaboration even of this sphere, in proportion as they tear themselves free from traditional moral forces, and still more when opposed to them. In proportion again as a scientifically grounded conviction of cultivated men can be serviceable to peace and order within society and the State—to the natural content of the social will. Wherever that scientific elaboration has been energetically undertaken, then it has naturally had for its unanimous opponents almost all those interconflicting parties. Even society—at any rate in Europe—has seldom become so conscious of itself as to demand a pure and strict moral science. But the State tacks between old and new social forces; the more it makes use of the new as material supports, the more it believes that it can entrust its moral supports only to the old.

68. The third argument against ordinary language is also still in force. Language is full of metaphorical expressions. And indeed there is a remarkable interaction between the names for physical (objective) and psychical (subjective) processes. A poetical or mythological mode of thought—to which we have already referred—works through language by personifying things, and by expressing and explaining what happens as their free activities; on the other hand, by means of metaphors, the preponderating mass of psychical activities is materialised and therefore objectified, even by the habit of denoting a grammatical subject as "thing," while thinking of things as spatially extended or corporeal. Psychological terminology has to fight step by step with both these kinds of natural expression. It has already succeeded to a large extent in overcoming anthropomorphism, but uncertainties and relapses may yet be noticed everywhere. In the modern brilliant development of the psychology of sensations and ideas, a new and manifold application of figurative language

has taken place. Think for instance of the "blending," the "threshold of consciousness," etc., terms which we do not intend to question here. Much greater difficulties again in terminology are met with in the analysis of the feelings and will, in depicting which poetical and rhetorical language is triumphant. But all these difficulties are most closely connected with difficulties in the *matter*, to which a subsequent exposition will lead us.

69. (2) Among the historical causes of the observed phenomenon, as it presents itself at the present time, one is most prominent: the downfall of the European language of scholars, of neo-Latin. So long as we possessed this there was, even if only in the forms of words, a scientific terminology common to all; while at the same time there was an external distinction between the technical expressions of the learned, and the inconstant language of daily life, of poetry, etc. The Latin language was international as the language of the Church; from the Church it had spread itself abroad over old and new arts and sciences. The more these separated and liberated themselves from the Church, the more they became "national," that is primarily nothing else than belonging to a large community of written language, the formation of which they themselves promoted. As Latin was the language of the spiritual class, so the national language belonged to the lay nobility and to the bourgeois strata which stood beside it. But side by side with these social forces there rose up the natural sciences, and consequently the new philosophy. Meanwhile the official science lingered on with little deviation under the spiritual influence; the universities and schools remained faithful in essential matters to the Latin language until towards the end of the eighteenth century. The new philosophy was a realm of free-masters as opposed to the guilds. Of the brilliant names mentioned in § 66 only one belonged to the learned dignitaries, and this one (Christian Wolff) was driven from his chair at Halle in 1723 under threat of the halter. To these free-masters there may still be added (among others) Hartley, Priestley, Hume, Voltaire, Diderot, Helvetius, Rousseau; among the Germans we may mention, still from the seventeenth century, Tschirnhaus, and from the eighteenth Lessing and Herder. But the state of learning among the Germans distinguishes itself in a most remarkable way from that of the two other leading nations—after Galileo's trial Italy sank back into clericalism. While the German universities remained almost untouched by the new paradoxes until towards the end of the seventeenth century, there took place

on the eighteenth a rapid and determined appropriation and elaboration of rationalistic principles. That was a result of the system of competition and of the small courts. Characteristic of it was the reception of Wolff at Marburg; while such figures as that of *Chr. Thomasius* and *Nicol. Hieronymus Gundling* are only conceivable in the small state system of Germany at that time. In France it was the Revolution which first established a free university philosophy, the school of Condillac.

70. But from Germany had issued that many volumed *system* of the new world wisdom, dignified in the language of the learned, which combined to a certain point the antithesis of scholastic strictness of form and free rational content, the work of Chr. Wolff, who was later privy councillor of the Prussian king. For the first time this whole content was systematically subjected to a formed terminology, combined from new and old material, which could not but help powerfully to break down professional antagonism so far as it consisted in handing down the old content in the traditional dish. Without the predominance of the Wolffian philosophy at the universities we could understand neither the deep impression of the "illumination" upon the German bourgeois consciousness, nor the impetus partly due to it of poetic literature, nor again the transforming influence which the greatest thinker who issued from this state of things, Immanuel Kant, was able to attain as *professor* of philosophy. Kant, who recoined the terminology for his ends with the greatest freedom, still remained to a large extent dependent upon what he had received from the books of the Wolffians, as we may see from his habit of adding the Latin rendering in a parenthesis to the German term. But the common language of the republic of learning sank deeper than before into the background, in the nineteenth century which he introduced. The consequent disadvantages affect especially the smaller nations, and thereby indirectly the whole community, in that they hinder the development of capable minds in these smaller nations, and make it more difficult for their works to become known than it is for works in a more widely spread language, which expands a more general capacity of mutual understanding, and where the aid of translations can be more easily called in. On the other hand, smaller nations have indeed the advantage of being more or less *indifferent* to the writings of this larger language, of being able to suck the honey out of the blossoms, instead of being forced to make their way through the enormous production of worthless matter in each particular larger language, as the scholars

of each respective country must do. This is important also for terminology, for the less valuable the thoughts of a man, the less remunerative it is to trouble oneself with his technical expressions.

71. (3) If at one time the universities were accused—and with some truth—of a useless refinement of terminology which forgot realities over words, or at any rate over concepts; still we must look for the cause of the present dissolute condition to the *decline of the scholastic tradition* and the diminished position of philosophy in the instruction of scholars—at least in Germany. Concerning this last point we should read *Paulsen*. The general fact is connected most closely with the subject we have just been dealing with. For through its hostile attitude to the universities and through its exclusion from them, the new philosophy gained, as well as by its inner tendencies, an approximation to the common rational mode of thought or, as it is said, to sound human understanding—common sense—and at the same time to the free, critically reasoning, literature of the native language, which especially since it became periodical is characteristic of the age. The great arena of public opinion is substituted for the disputations in cloisters and halls of audience. Mutual understanding therein is already made more difficult by the unlimited remoteness of opponents, by the lack of personal acquaintance, by the vast number of contending voices. And though the written word can be better weighed than the spoken, yet the haste of production, the absence of any authority, of any visible judge, and the success of boldness, of catch-words, do much to disaccustom *literati* from precision of thought, from the careful choice of words, from conscientiousness in attacking an established terminology, especially when it is used by opponents. The very heads of the anti-scholastic philosophy spoke indeed about exact terminology, but only partially busied themselves about definitions; and here it was in the hottest opponents that the influence of tradition showed itself strongest. But, above all, simplicity was aimed at; a few and easily learned technical expressions, it was thought, must suffice. More and more there developed a philosophical popular literature, which spoke the language of courts, of *salons*, or of markets and public houses—a danger to exact and strict thought which John Locke, one of the heads of this popular philosophy, has noted with great force. "I confess," he says, at the close of a long chapter on the abuse of words, "in discourses, where we seek rather pleasure and delight, than information and improvement, such ornaments

as are borrowed from them can scarce pass for faults. But yet, if we would speak of things as they are, we must allow that all the art of rhetoric, besides order and clearness, all the artificial and figurative application of words eloquence hath invented, are for nothing else but to insinuate wrong ideas, move the passions, and thereby mislead the judgment; and so, indeed, are perfect cheats . . . and where truth and knowledge are concerned, cannot but be thought a great fault, either of the language or person that makes use of them." But in the preceding sentence he remarks, that "wit and fancy finds easier entertainment in the world than dry truth and real knowledge"; and this remains true to-day, notwithstanding the enormous progress of the sciences, especially in those spheres, which we do not seek to know for any practical utility, the utility of which we do not see, or which cannot even boast of any practical utility, at any rate for external ends. Psychology especially is the natural field for wit and imagination, and here instruction is reluctantly undertaken when it has to vie with entertainment. And yet an entertaining instruction is by no means to be despised; only it should be kept as sharply as possible distinct from the terminologically "dry," esoteric science. But the evil is to some extent inherent in the development. Bold thoughts, in emancipating themselves, break through old forms, fixed rules, stiff technical expressions, as a flame, consuming and illuminating, "wanders along its own path, the free daughter of nature". In Germany especially, in the second half of this century, there is repeated in an abbreviated form the spectacle which the new philosophy as a whole presented as opposed to scholasticism. A new University-philosophy had been established. We will pass over its history here. It culminated in *Hegel*, who spoke his own language, his "jargon" as his opponents mockingly called it. As University-philosophers, opposed to his autocracy, none but Beneke (who never attained an "ordinariat") and especially Herbart, formed their own schools. But then again there appears, with wider influence, a crowd of free-masters, who make an eloquent and unsparing attack upon the whole "speculative" philosophy, just as the moderns did upon scholasticism in general; but especially with complaints against the "incomprehensibility of the language". These are the more successful in winning over the public, because at the same time they pay their homage (with more or less reserve) to *natural science* which is once more breaking away from all philosophy, and because they are again approximating clearly to popular literature. The

names of Schopenhauer, Feuerbach, Büchner, Dühring, von Hartmann—perhaps we must now add Nietzsche—denote the common element in these tendencies. The new school tradition which had formed itself, although in divergent directions, has been quickly disintegrated. Concerning the result of the whole movement—of which naturally the last phase affects us most—for our present subject, we may hear the clear testimony of a thoughtful expert, which our own knowledge can only confirm. "Thus there appeared," says Eucken, "manifold systems and tendencies which side by side, or one after the other, asserted their power and predominance. But none succeeded in permanently maintaining its pre-eminence. This is manifest even in terminology. All these systems may be recognised in the terminology current in general scientific language, though in very different degrees (Hegel still predominates without question). There is indubitably present a certain syncretism, with all its defects and dangers. . . . In particular societies and sects, indeed, a strict observance is maintained in rejecting everything alien. But the terms of such sects are like small coins, which are not current outside their narrow sphere. . . . With us Germans, for instance, so much of a manifold and contradictory nature has been accumulated, that the technical philosophical language hardly continues to form a medium of understanding." Since this was written (about twenty years ago) external conditions have somewhat altered. The study of philosophy at the universities, after years of evanescence, has begun to revive; but now under a new character which the whole development has been preparing: "everywhere we are beginning to philosophise from the basis of the sciences" (Paulsen). But the sciences from which the most energetic and hopeful start is made are not, as in the sixteenth and seventeenth centuries, the natural sciences, but the mental sciences, which are drawing more closely together. Psychology and Sociology (which may also be called Social Psychology) form the centres, Biology constitutes the bridge between the two great spheres. But the improvement and influence of these sciences depends again upon the interaction of German thought with the thought of other languages. So far as universal (logico-speculative) philosophy is yet considered at all, there is no question that in this century German philosophy alone has won a rank for itself, and made its influence felt in all countries. It is different with the particular sciences and with that philosophy which would erect itself upon them. Here co-operation is manifold, though it may

unite only in the summits and branches; so that it is hard to estimate the relative share of any language in extending our knowledge. This co-operation has become especially fruitful where, as in Biology and Individual-psychology, it rests upon natural sciences which deal with matter of fact and are terminologically firmly established. International understanding finds here its limits. Meanwhile the psychology of the isolated sensations is more and more promoted by experimental methods and treated like a natural science (the way had long been prepared in the physics of the perceptible qualities), and it coins for itself at any rate a limited number of concepts, in such a way that they may be easily transferred into all languages and may yield the foundation of an identical terminology in this branch. The division of all psychical facts into sensations and feelings, although somewhat opposed to the spirit of the English language, seems likely to prevail; it is only a renewal, adapted to our present knowledge, of the old dichotomy *intellectus-voluntas:* the simple potentialities have been replaced by a number of acts.

72. (4) But in the differences of thought itself we have a powerful, and indeed internal, check to mutual understanding in words (hence a chief cause of the present state of affairs). In principle, the question whether in spite of differing principles, opinions, theories, a common terminology is possible, must be unconditionally answered in the affirmative. That is, indeed, the purpose for which a scientific "language" has always been prized and sought, to put an end to *senseless* and *fruitless* disputes about words, but not to thoughtful and fruitful disputes about things. But Kant was right in opposing the oft-repeated maxim "all disputes of the philosophical schools are to be regarded as *mere* verbal disputes". It is not alone that we find contrary instances, apparent agreements which consist only of words, which mean something different to every one; not alone that different *judgment* concerning things and processes takes shape even in technical expressions; but many disputes are empty because the object which A denotes by his term, and of which he states something, is altogether unknown to B, and because B again is neither willing nor able to know this object.

73. Eucken rightly points out how everywhere philosophical language is connected with philosophical thought itself. If we consider from this point of view the development from scholasticism and against it, what we first see is a great work of destruction. The simplification of terminology, to which

we have already referred, corresponds to a simplification of thought itself. The effort to attain this passes through the whole epoch, down to our own time. It finds satisfaction chiefly in the mechanical interpretation of corporeal things. Behind this lies the striving after technical *sway* over matter and the "natural forces". Where the mechanical explanation of processes is not adequate—in chemistry—more weight is given to the analysis of matter into ultimate elements and elementary units: analysis on behalf of synthesis. The whole tendency opposes man to all the rest of nature. Man *thinks* primarily and principally about matter and motion, the connexion and connexions of which he then learns, in order that he may then think of himself, *i.e.* may will, may make matter and motion serviceable to his ends. To matter and motion belong also the human body and its life; man learns about both for the sake of medicine. Everything is machinery; but in the human machine alone there dwells the thinking I, in an incomprehensible way, it is true, but able to direct partially this machine which is casually connected with him, and also to interfere with all the other mechanism. The thinking I, which is of quite another nature, yet subjects to its knowledge and will a dead matter which is alien and indifferent to it, even that of animals and plants. This idea, the necessity of which we sufficiently comprehend when we learn to understand it in its dependence upon actual historical development, has found its classical expression in the system of Descartes, which has formulated these principles in an almost perfect manner: the two opposite extremes which are always issuing anew from them, Phenomenalism (or Idealism, or whatever we may call this "theory of knowledge"—latterly even Realism) and Materialism (in its vulgar form) are only modifications in which the fundamental character repeats itself less clearly. It is Descartes also whose influence upon terminology has been most radically destructive and levelling; if others compete with him, there is yet no doubt that his *success* has been greatest in this respect. He was received into the schools—this is the inner meaning of Wolffianism—and though consequently thoughts and terms proceed again from simple to complex forms (as especially in the particular natural sciences), yet the strict rationalistic type maintains itself. Descartes gave the keynote of *clear and distinct concepts*, banishing all others. In its most important application, that to material nature, this means the exclusive validity of mechanical principles. But even in Physics and much more in Chemistry, this revolutionary claim meets with hot opposition, which is overcome

only in idea and hope; while in Biology it seems to break down altogether at first sight. The real aim of that claim was to put aside what could *only* be thought; clear and distinct thought holds by sensuous perception, while separating from it. It rejects its subjective factors, in order to present in greater purity its objective content—the extension of matter. But here there is no room left for anything which can *only* be thought; the parts of matter are real, and only change their place, *i.e.* their relative position, in motion. The possible is an object of thought alone, hence it seemed a matter of course to reject the possible from reality. In fact, to rationalism everything seems a matter of course, completely natural, which it desires, and it appears so also to itself; hence it rejects and mocks at the scholastic concepts as meaningless. Even the gravitation of the Newtonian physics was censured by the Cartesians as an occult quality, and the concept of chemical affinity was to its originator Boerhaave nothing more than a new expression for that "sympathy" between bodies or elements which is of such ill-fame to all moderns. To these concepts rationalism gives, at any rate provisionally, a mechanical interpretation. On the other hand it throws aside the concept of vital force altogether, together with all the specific forces of the organism derived from it. For a long time during the last generation it seemed triumphant here; it was accepted as an axiom that life could and must be explained only from otherwise known physical and chemical "forces". Now the concept of force itself is indeed only an object of thought; and this is true again of the differently formulated concept of energy which is latterly being substituted for it. But it is easy to satisfy the realistic claim by reducing all forces to the movements of atoms (invisible parts, as Herbert Spencer says), or by maintaining kinetic energy to be the fundamental form as opposed to all other forms, which are provisionally grouped together as "potential" energies. But a very marked reaction against the rationalistic-mechanical tendencies is just appearing. A vitalistic impulse is again disturbing the biologists; the accepted law of the conservation of energy, in its change of forms, is itself being *opposed* to the mechanical explanation, which as an "arbitrary hypothesis" is said to be "already given up"; while the search for mechanical equivalents, notwithstanding its famous success with regard to heat, is said to be hopeless with other forms of energy, such as electricity (Ostwald). This renewed opposition to the previous and persisting motive-force of natural scientific reason depends partly upon a just insight,

but partly upon a false assumption as to the aim and value of the whole mode of thought, an assumption which indeed has been defended most keenly by the most decided adherents to that thought. It depends upon a just insight, for the view that mechanical causality is completely "conceivable," that, in other words, the *necessity* of the law of persistence upon which it is based may be known *à priori*, is the last refuge of the fancy that the "universe" is and must be somehow "explainable," in the sense of the statement that it has been "created" by a God, *i.e.* by a spirit; behind the fancy lies the belief in magical effects. This view has been exposed most clearly and fundamentally by David Hume; but, long before, its refutation and subjugation had been contained in the deepest and most radical system of thought which was brought against Christian Aristotelianism, in the system of Spinoza. For Spinoza's proposition, ratio = causa, which is ordinarily interpreted as an expression of the most extreme opposition to Hume, of Rationalism in its strictest form, is really something quite different. What he means to say is, there is no "causa," no "real" and therefore "efficient" causes, there is nothing but "ground of knowledge"; but this is the necessary form of our thought, in so far as it forms universal concepts, in which particular concepts are contained, and from which they follow. Hence in this sense the universal concept, the common ground of knowledge or the "cause" of all phenomena, is that Infinite (*i.e.* that which cannot be expressed by any unit of quantity or number), which Spinoza defines as substance or nature, and which the natural science of to-day, differing only in the name, calls self-maintaining energy. But the opposition depends on the other hand upon a *false assumption;* the assumption that the reduction of the forms of energy to mechanical motion must, or indeed could, mean that by it mechanical motion would be established as the more real or as the only real. This is certainly the uncritical view of most naturalists. The real question can only be, whether an external world, consisting of like units (centres of force), which work mechanically upon each other and thereby change their mutual positions, is for our thought the ultimate numerator to which a mathematical interpretation of phenomena *must* refer all magnitudes and their changes, if it is to proceed consistently. This world is not comprehensible in the sense that we are able to see the effect of a direct impulse as necessary, but in the sense that *if* motion can be thought of as a quantity—as Galileo has taught us to think—*then* it is capable of

increase and decrease, and its changes can therefore be submitted to calculation. That this world which alone is present to thought and unified *by* our thought, is the only one which is there at all, or is in any sense more real than the world perceived and felt by our senses,—to assume this is a useless and unfounded addition to that "regulative idea," if we may introduce here that illuminating concept of Kant's in whose spirit this is thought. But that this most powerful idea should cease to regulate and to serve as guiding maxim is, if we may judge by the previous course of development, just as improbable as it would be undesirable for the progress of knowledge.

74. But the more we maintain and affirm this predominant significance of the mechanical principles, the more is it incumbent upon us, if we are to estimate their *absolute* value aright, to reflect critically upon their origin, and to assign limits to their use accordingly. To criticism the whole of this most fruitful line of thought must appear artificial, and every analysis of all reality, or of any reality which is regarded as independent, into self-subsistent "things" (substances) must appear as something *posited* by human will, or what is here the same, by human thought. Reality itself is so, especially the "external world," and things are for naïve thought (imagination) as active individuals within it. This naïve thought is, as it were, artificially extended by the reflective understanding; it peoples the world with efficient qualities, forces and souls. But then follows the scientific understanding, which desires to rule over the world and therefore to make it accountable; it negates the naïve thought and the reflexion which depends upon it; it strips the "world" of all that which makes things appear as essentially (qualitatively) different. In that which it allows to remain it finds what it has allowed to remain—matter and motion; these can be subjected to calculation in proportion as, after their apparently given connexions have been removed, they have been resolved into like units which are not further reducible, and which can be arbitrarily placed in new combinations by thought, or indeed by real activities. Now critical reflexion affirms (as we have said) that all separations are posited, and before or behind all, that of subject and object; what is "given" is only their unity and *in reality* (*realiter*, or as the schools would have said *formaliter*) their indissoluble connexion. And again, *after* the positing of an objective "external world" has been critically reproduced, it must be known and recognised anew as a whole, in its essential unity, even when it is torn away from *all*

subjects (not only from the thinker himself), and the withdrawal of all sensuous qualities is therefore as it were granted. The thought which is connected with intuition—or what is the same thing, pure experience—must also correct with energy the mathematical understanding. It says to it, as it were, "You see in the world nothing but similar processes, which repeat themselves from eternity according to the rules which you call natural laws; you see in it nothing but discrete atoms, which combine and part, attract and repel each other; these views of yours are very useful and so far correct; but if you will only forget all your plans and purposes you will allow that you know your matter only as a continuum, and that you as well as I are forced to posit its magnitude or extension as infinite, and therefore as defying all measurement; further you must allow that in experience there are no completely similar events; and that the existence of the universe is given to us only as *one single* process, which we can compare *as a whole* with no other. You believe that the constantly repeated revolution of the planets around their axes and around the sun were ordained from all eternity and would endure to all eternity; but with your own resources we have found that the genesis of these planets and of the sun from the undistinguished unity of glowing masses of gas is a unique event, which we may indeed explain in detail by the known laws of nature, but cannot derive as a total effect from some total antecedent cause, because it points back to unascertainable earlier world-processes *in infinitum*. In the same way the cooling of the crust of the earth and the development of organic life upon it are events which have nothing like them, and which cannot therefore be understood in the same way as events which repeat themselves similarly under sufficiently like conditions, or can even be reproduced artificially at pleasure. If the transformations of energy in the universe tend predominantly to the production of heat, while heat always passes over from warmer to cooler bodies and so tends to distribute itself equally, if then *entropie* strives to a maximum and the total state to the cessation of kinetic energy, as of all forms of energy except heat,—we must accept this predictable history of the universe, like its past history, as a simple fact, the explanation of which is nothing more than its differently expressed description."

75. We see in fact, throughout the whole of the present century, how investigation and reflexion combine in a criticism of the mechanical Rationalism, which leaves it untouched in a higher thought; though that criticism

oftener enters into phenomena as pure negation without understanding. In its right understanding it is a necessary evolution of the Rationalism which knows itself and the limits of its own power. Its progress within objective natural science is marked by the deeper study of the processes of *life*. But as philosophical inferences, in which it describes its curves, the following demand recognition: (1) The existence for a deductive thought of the infinite previous to the finite, which enables us also to think of unity before the manifold, of the universal before the particular, of the whole before its parts. (2) The predominance and victory

	Motion		Rest
of the ideas	Change	over the ideas	Identity
	Becoming		Being.

For rationalistic thought the victorious ideas are indeed indispensable; but they are conceived of as being added from without. The state of rest, etc., is the natural, as in a constructed machine, say in a clock which has not yet been wound up, a comparison which is used by almost all these thinkers. The impulse must be given to matter from without, since every part receives it from another; here the system demands its *Deus* as the originator of motion, of change, of becoming. The other mode of thought, which we may begin by regarding as the empirical, accepts matter in motion as the fact of facts, and does not trouble itself about the old concept according to which motion does not belong to the "essence" of matter. Impenetrable atoms and their appropriate empty spaces are for it only auxiliary ideas, however necessary they may be for rational thought. Here lies also the point where the doctrine of the conservation and transformation of energy breaks the old form of the mechanical system. (3) As in the conservative system of the universe the total amount of energy maintains itself while its forms continually change, so the totality of a living organism maintains itself as the persistence of the relations of its parts throughout the continuous change of the parts. Life is at the same time reproduction and destruction; it exists, therefore, together with the tendency to its opposite, for which reason Bichat defines it as the fight against death, and another French physiologist, Claude Bernard, ventures upon the dialectical proposition "La vie c'est la mort". (4) Thus the reality of every moment or any limited portion of time, carries in it as its negation the real possibility, inclination, tendency, disposition, power or capability, or whatever we may call it, to all following moments; possibility is therefore in no way an object of thought alone, but it is reality itself

in its necessary relation to time, *i.e.* to activity, performance, completion. It must be noted most carefully, how here the regenerated Aristotelian concepts meet with the concepts of modern physics. For what is energy, which is now accosted as the true reality, but *capacity*, inclination, tendency (or whatever it is called) to perform work?

76. But this whole renewal of thought is of the deepest importance for *Psychology*. Critical (or empirical, or positive) reflexion has for its chief result, that there is no ground in the given facts for the separation of subject and object. The Cartesian view, that a subject is connected only with the human body and then as a miracle, is definitely abolished by the theory of evolution. However radically it may be opposed to tradition and to naïve opinion, that view is nevertheless a remnant of the old belief that the soul has its seat in the body as another being; a belief which was much refined in Aristotelianism, but in the Christian scholasticism, at any rate for the *anima rationalis*, was reduced again to its vulgar form. For Descartes, as for his predecessors, the soul perceives movements of the body and reacts upon them. The actual facts are sufficiently described by saying that the body perceives itself and reacts upon itself, *i.e.* as a whole upon its parts. We may give the body, so far as it is subject, *i.e.* psychical fact, the traditional name of "soul". Body and soul are then different names of one and the same object, which as body is perceptible in its parts, but as whole, *i.e.* as persistent relations of the parts (what the Aristotelians called form) is, like the soul, an object of thought alone.

77. Between Descartes as Intellectualist (regarding the soul as independent of all experience) and his sensationalist opponents (Gassendi, Hobbes, Locke, Condillac) there is from the present point of view no essential difference. The latter also retain the soul as another being, but treat it still more as something passive, because they think that they can sufficiently explain sensations by the effects of "impressions" of external objects, and rightly derive thought—as a process of memory—from complications of persistent sensations. This view has transplanted itself into the whole of the modern Association-Psychology, which, in connexion with the Physiology of the nervous system, has resolved so great a part of the facts of knowledge into its atoms (with which *Carus* compares the isolated sensations) and has synthetically reconstructed them. But the philosophers of this tendency, especially the Herbartians, return quite consistently to the soul as a simple being, as something which must correspond to the grammatical and logical (*i.e.* denoted by a name)

subject. But the obstacles to this thought are the feelings, especially that complex of sensations combined with feelings to which we give the name of will.

78. Unprejudiced self-knowledge now allies itself with the doctrine of descent to posit feeling as identical with the fact of life, and consequently as the constant and original element which is common to all living beings. Vital feelings are feelings of activity, and the apparently simple fact of the reflex action of human sense-organs to external stimulus is really the feeling of a most complicated and late-developed activity. It is not our business here to follow this Psychology into its consequences. All that we need to do, is to emphasise that a *terminology*, which adheres to its principles, is in confusion and conflict with a terminology which refers essentially to the simplicity of the soul-substance, and partly to its passive, partly to its human-rational nature. It is characteristic of the difficulty with which the biological point of view makes its way, that even the psychologists who have made most progress in this respect continue (1) to begin with the psychology of the senses, (2) to represent, or at any rate to treat, human psychology as universal psychology.

79. Connected with this, moreover, is the obstinate persistence of the view that intelligence belongs to the essence of the soul, a view held to be so certain by one of the most able investigators that he represents the willed adaptation of means to ends as the criterion of psychical facts in general (James). Finally, the confusion which often lies hidden in the terms consciousness, unconscious, subconscious, may be largely ascribed to the circumstance that the concept of consciousness is derived from human thought, but because thought is taken for the essence of the human soul, therefore "consciousness" is sometimes a state which can only be mediated by thought,—as a rule by the recollection of words, sometimes simply psychical facts in so far as they are present. But because their presence is again thought of in analogy with thoughts, or at any rate with their elements (sensations and ideas), therefore the necessary concepts of involution and evolution, of growth and differentiation, of all those processes which denote psychical life just as they do physical life, do *not* get their appropriate validity and naming.

80. It is chiefly the doctrine of the will which suffers from this, as from the dependence of terminology upon customary language. If we take as our basis the concept of the vital feeling, and of the manifold organic feelings of activity into

which it develops in the animal along with the organism itself, then this, like life in all its phenomena, is twofold: assimilative and casting aside, receptive and repellent, affirming and negating. Now among the vital activities of animal beings those of the nervous system in their original unity with those of the muscular system, are altogether characteristic, as supporting the motor changes effected by external stimuli. The unity of the vital feeling in a corresponding way separates into the similar feelings of motor activity, and into the more strongly modified and infinitely manifold feelings of reaction to external stimuli—the sensations. This animal differentiation does not coincide with the original vegetative differentiation, although allied to it. But this repeats itself in a most marked manner with the higher development of the sensations; a psychical organism within the soul, like the cerebrum within the body, is formed as a complex tissue of possible and actual connexions of sensations, a tissue of which the essential functions are the positing of likeness and difference, *i.e.* are assimilation and separation, reception and rejection, affirmation and negation, completing itself in man by the possession of a sign-system of words as the function of judgment, and so as thought. Now we have the word "Will". It means, the idea (A) of something active (grammatical subject); (B) of something "passive" (grammatical object). As A the idea is, (i.) equal to the idea of the soul in general; (ii.) equal to it in so far as it is thought of as working outwards, in opposition to the intellect as the soul receiving from without; (iii.) specifically as ruling, commanding, guiding, causing, movements of the body. As B, it is something thought, a thought or a complex of thoughts. While therefore the idea A is applicable everywhere where a body is thought to have a soul in it, hence at least in all animal organisms, the idea B is applicable only to men. But these ideas are confused together. Like the soul in general, the will is sometimes used as equivalent to the intelligence, or defined as something intelligent; then there arises in contrast with intelligent thought the concept of intelligent "instinct," instinct "guides" the animal, instinct "tells" him, "teaches" him, etc. On the other hand, as product of the thinking I the will becomes as it were its instrument, by means of which it issues and fulfils its orders; it is then very easily simply identified with the thinking I, is therefore its own object, and this corresponds best to the feeling and the idea of the "free" will. But as subject or as object, the idea which the word is meant to express always has a reference

to the future, to a becoming, hence simply to a happening; but it can without difficulty be generalised and refer also to the existent; the common element is then the affirmation and—in the opposite sense—the negation of a state or of a change. Hereby it becomes identical with the feeling of pleasure and pain; but these are indissolubly connected with desire and dislike, hope and fear, in short with all positive and negative "wishes," which are again conditioned by sensation, idea, thought of a future state. Thus, if we follow language, Will may be identified with or distinguished from, all particular and connected sensations and thoughts; it may be conceived of as something quite illogical, unmediated (as actual "caprice" or fancy), but also on the other hand as a strictly logical, systematic structure.

81. Physiologists and Psychologists are always tormenting themselves with new investigations as to what it really is, but find again that "Desire, wish, will, are states of mind which every one knows, and which no definition can make plainer" (James). But then they are distinguished: (1) "We desire to feel, to have, to do, all sort of things which at the moment are not felt, had, or done; (2) if with the desire there goes a sense that attainment is not possible, we simply *wish;* but (3) if we believe that the end (attainment) is in our power, we *will* that the desired feeling, having or doing shall be real". We really have here an arbitrary limitation of customary language which would perhaps be not to blame if the author remained true to it; but after a very thorough investigation he finds that the effort of attention is the essential phenomenon of the will, and thinks that every reader must know that it is so from his own experience. The first limitation still includes every "spontaneous" beginning of movement of the body, hence also those "involuntary" ones which follow immediately upon sensation or idea; the others expressly make "stable" thought, held with exertion the condition of the will; here only the "voluntary" activities of *human beings* are thought of. *Wundt* too has previously declared that "the will can be defined as little as consciousness"; but then he took "apperception" or the "inner volitional activity which is given from the first with consciousness" as the decisive and alone sufficient characteristic of the concept, and from it he derived the "external" act of will as "apperception of a motor idea". In his later (small) *Psychologie* he regards the process of will in quite a different way, defining it as an affection (a connected course of feeling of a uniform character) together

with the ultimate end issuing from it of a sudden change of the idea- and feeling-content. Finally in the deep expositions of his *System* he takes the will in a sense which is expressly based upon parallelism, or indeed upon identity of body and soul; it becomes the psychical content of life, sometimes distinguished as the "pure will," a "transcendental soul-concept, which empirical Psychology demands as the ultimate ground of the unity of psychical processes, but of which it can make absolutely no use for its purposes". "If it would gain from it a soul-concept useful for the empirical derivation of the facts of inner experience, it must forthwith extend it into a composite unity including the possibility of a plurality of presentative activities." For the most part the physiologists adhere to a concept of the will, which makes it, after the fashion of the Cartesian soul, a rational person within the body; they like to represent it as telegraphing and issuing orders. But some, like Huxley, are consistent and materialistic enough to think of *all* animal, hence also human, activities as "automatic," and of *all* "phenomena of consciousness" as mere by-products of the vital process, reacting in no way upon it. They differ from the Identity-psychology only in the obstinately maintained prejudice that only the objective or physical is "real"—*i.e.* they differ fundamentally only in *terminology;* for no one has ever been able to say in what particular sense the former has a *right* to be called real, while the psychical "accompaniment" has not. We regard Wundt's latest exposition, together with its terminology, as very fruitful; but even Wundt has not yet given us a psychology which develops and derives the particular and most particular human wills from the universal and pure will, according to the given programme. Even for Wundt the name remains *previous* to the concept, or at any rate simultaneous with it. But it is for ever in vain to hunt after that which the will really *is*. To obtain a fundamental view of the facts, that is the only important task; and that indeed is made very difficult by the fact that we can express them only in words which already mean something else. But we might try to avoid such words, to form the concept entirely from words *already defined*, and then to assign to it the abbreviating name, *e.g.* "Will". It is in this way that we have endeavoured—though anticipating concepts—to determine as the human individual will that combination of ideas which is in any way "positing" (*quasi* legislative) for, or "effects," subsequent ideas and combinations of ideas, we may now say, which contain them in it as possible; it may be that it completes and exhausts

itself (or its "effect") in a single "action," or that it forms the *rule* of repeated similar activities—*i.e.* of the feelings of activities. All that we maintain is, the value of this *concept* for the understanding of undoubted facts, *e.g.* of the fact that for every one something becomes the sign or mark of something else, without being it by nature. The *name* is, in and for itself, completely indifferent; we think indeed that it extracts as it were the quintessence from everything which is ever thought of as human-rational will; for this much is common to all those ideas: something affirming itself, affirming or denying other feelings and ideas. It is this again upon which the relation of every particular will to others is based; and again a concept is necessary which expresses the unity of several wills, as affirming itself and affirming or denying its members. This we called "social will". In it, it became obvious and clear that will, or whatever we may call the psychical power, is only apparently the "cause" of bodily movements, that it is nothing but power over its like—ideas and feelings. But the relation of the individual will to itself and to the body belonging to it is nothing other. This is difficult, but not impossible to think. It must be learned and practised.

(To be concluded.)

IV.—THE SPATIAL HARMONY OF TOUCH AND SIGHT.

By G. M. Stratton.

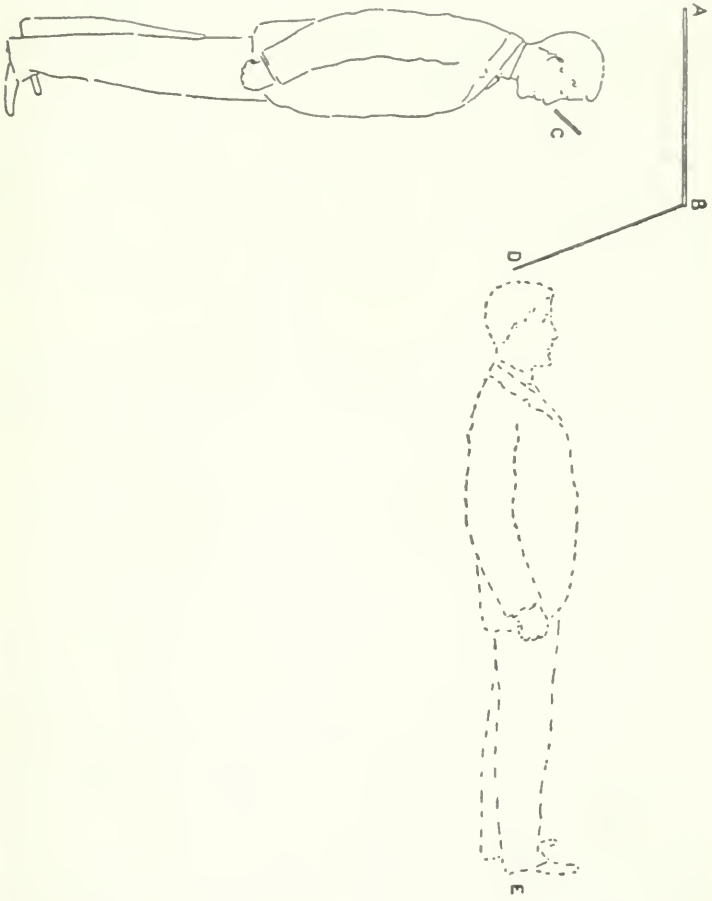
The more recent investigation concerning touch and sight seems to indicate that the place in which any part of the body is persistently seen influences the localisation of the dermal and kindred sensations arising in that part. If one were to see his feet, for instance, in some direction different from their present visual position, he would in the end refer thither their kinæsthetic impressions also. This much, it seems to me, was implied in the results of my experiments on inverted vision, reported not long ago.[1]

It has since occurred to me that the more general inference then drawn—namely, that any position in the field of view could, under suitable conditions, be felt as identical with any tactual position whatever—was not fully justified experimentally until one took into account a factor with which my experiments at that time were not concerned. For the conditions of the experiments were such that visual objects were thrown into new directions, while their apparent distances from the observer remained unchanged. Strictly speaking, then, the results showed how tactual localisation is affected by disturbance of the normal visual *directions* merely, and indicated that sensations of touch and movement may come to be referred to an entirely new direction in sight, but not necessarily to an entirely new *distance* as well. In other words, the experiments showed at most that a discord between touch and sight which was a mere matter of direction would necessarily be transitory; but no direct evidence had been gained as to the possibility of harmonising these senses when the discord involved both direction and distance.

An experiment was accordingly tried as to the effect of introducing this additional element. A mirror (AB in the

[1] *Psychological Review*, vol. iii. (1896), p. 611, and iv. (1897), pp. 341, 463.

diagram) was supported horizontally and face downward over my head; and below this, and before the eyes, a small mirror (C) was fixed face upward but slanting at an angle of about 45°. The mirror overhead thus imaged the person as seen from above, and this image was in turn reflected in



the mirror C, so that the observer saw his own figure projected in front of him, approximately in the position DE. A light portable frame, consisting mainly of two upright supports, held the mirrors in fixed relation to each other,[1]

[1] The following details are given, in case any one is interested in the measurements of the apparatus: mirror AB, 20 in. × 24 in., longer

and was bound to my shoulders and waist so that I could walk freely about and use my hands. My head moved independently of the mirrors and was unencumbered save by a small dark guard of paper about my eyes, which kept me from seeing the mirror above or the scene on either side, or my body except as reflected in the small mirror before me. So much of the view in front as might not have been shut out by this mirror itself, was cut off by a slanting screen of dark cloth (BD) attached to the upper mirror and extending a distance along the sides. The angle and elevation of the small mirror, moreover, were such as would allow me to see no direct reflexion of my face or head, but only the reflexion of them in this small mirror received with the rest of the body from the mirror above. This double or successive mirroring which the scene underwent of course compensated the usual reversal of right and left which we have when looking at ourselves in a glass, and gave the scene in its true relations.

The observer was thus enabled to watch himself from a point of view apparently above his own head. The field of view included the entire body and a limited region around, so that one could move and act with some perception of the immediate surroundings.

The experiment lasted from 3·20 P.M. until 9·30 P.M. of the first day; from 9 A.M. until 7·30 P.M. of the next day; and from 9·45 A.M. until 5·15 P.M. of the third day;—a net time of a little over twenty-four hours. Between these periods the eyes were of course securely blindfolded.

In general it was soon evident that in spite of the altered conditions the experience was running much the same course as during the experiments on inverted vision. There was slight dizziness at first, some tendency to loss of balance, and it was difficult to direct visually the movements of my feet or hands. But by the third day, although some fumbling still occurred, movements were usually done with comparative freedom and precision. There was, throughout, little of the general bewilderment, and nothing of the confusion of right and left so hard to overcome when the field of view was upside down. The main difficulty now was not that movements were started in the wrong direction, but rather that I had no instinctive feeling as to what visual distances were within effective range of my limbs. Things

diameter running forward and back; mirror C, 4 in. square; distance of mirror AB above top of head, 10 in.; distance between AB and centre of C, about 11½ in.; the top of the observer's head consequently seemed projected about two feet in front.

that were well within reach seemed hopelessly remote, until a deliberate comparison of their positions with that of my visible hand made clear the error. And when things in sight came in contact with some part of my body, the touch-perception, by seeming suddenly to bring the objects nearer, showed that by sight alone their distance had been considerably overestimated.

This indicated that, with regard to things other than my body, the position in which they were actually seen was very early accepted as their real position; there was no translating their new situations into the terms of the older, normal, visual experience, except when touch introduced a discordant report. In the case of the body itself, however, whose visible aspect was of course uninterruptedly accompanied by sensations of touch, there was a much less ready acceptance of the sight-impression as final and real. The visual projection remained for some time a mere reflexion or displaced image of the reality which was still thought of as lying in its normal position. But as time wore on, this older, normal representation became less persistent and vivid; it was often found to be blurred and to require an instant's mental withdrawal from the actual scene before I could recall it in its original vigour. The actual sight of my body, on the other hand, had constantly to be heeded in visually guiding any action; so that it had thrust upon it an immediate practical importance which the older representation could hardly maintain. But not until the afternoon of the second day did I notice anything like an acknowledgment of this reflected image as my very body itself. On the third day such an attitude was more frequent. But even to the end I usually had only to shut my eyes to cause the older mental picture to surge back and drive from the field all but some faded remnant of the new perceptions. At times, however, even with closed eyes, I involuntarily thought of my body as in the position just seen.

This growing recognition of the projected image of my body as the real body was accompanied and doubtless aided by a waning opposition of the reports of touch and sight. Even on the second day, impressions of touch occasionally suggested no other place than the one indicated by sight. And again on the third day I sometimes found myself handling things in sight without any conscious opposition in the localisation of the different impressions: the touch sensations were not referred to any other than their visible locality. But the most frequent and striking

examples of such harmony were found, as in the case of inverted vision, during the more rapid and inclusive bodily movements, especially that of walking. Under these circumstances, on the second day, I sometimes felt myself strangely tall, as if my body had been elongated into accord somewhat, with the apparent distance between the ground and my point of view. As yet, however, the tactual sensations in my legs hardly seemed as far away as their visual counterparts. The impressions of sight and touch were apparently referred to the same general direction, but as though the touch-sensations had been attracted toward the visual, without attaining absolute coincidence. There seemed to be little or no corresponding attraction of my head and shoulders. In walking I felt as though I were moving along above the shoulders of the figure below me, although this too was part of myself,—as if I were both Sinbad and the Old Man of the Sea. The next day, during a rapid walk with some one guiding me, I had several vivid impressions of a more general harmony of touch and sight, best when the impressions were more or less passively received without searching to detect nice differences of localisation. If I carefully noticed whether my body seemed to be in its older place, this older localisation could always be felt. But in the more languidly receptive attitude during my walk, I had the feeling that I was mentally outside my own body. It was, of course, but a passing impression, but it came several times and was vivid while it lasted. But the moment critical interest arose, the simplicity of the state was gone, and my visible actions were accompanied by a kind of wraith of themselves in the older visual terms.

The harmony of touch and sight in the case of my feet and the lower part of my legs was hardly so easily disturbed. Even when I gave careful attention to them during a rapid walk, I had often no consciousness of any different localisation from that reported by sight; they only seemed strangely projected and far away. After these, the most ready union of touch and sight under the new conditions occurred in the region of my hands. My head and shoulders, on the contrary, were far less tractable, as in the experiment with the inverting lenses; and yet in the present experiment they were as much in sight as any part of my body; so that I cannot any longer attribute the slower development of the harmony in their case to the mere fact that they were less frequently seen under the abnormal condition. It now seems evident that in addition to having the part perceptible by both touch and sight, it is important that the occurrence

of a tactual sensation should be regularly signalised by some striking occurrence in the visual field, and *vice versâ*. The simultaneous outcrop of the two disparate impressions brings about an association between them, so that each comes to mean the other much more rapidly than if the tactual or internal sensations occurred without any marked change in the visual experience. The dermal and internal sensations arising from the head and chest are accompanied by visual changes which are less striking than those associated with the kinæsthetic variations in the feet and hands. The act of swinging the leg and planting the foot, of moving the arm and grasping, gives a lively impression for both sight and the motor-tactual sense. And these changes are, besides, more interesting and invite a more attentive supervision than do the movements of circulation and breathing and directing the eyes. What visible appearance there is of these latter movements generally passes with less heed; and a longer time is consequently required to develop intimate connexions and instinctive cross-references between touch and sight than in the case of the legs and arms.

As to the feeling of the directions up, down, and level, there was at first an utter rejection of the directions suggested by the view, then an occasional confusion—for example, as I stood by a table handling something upon it, I seemed to be looking *down* on my hands and yet at the same time looking out horizontally (which was the actual fact)—and finally cases where the apparent plane of the ground was accepted as the true level, and my body was felt as upright upon it. More frequently, perhaps, there was a compromise, in that the new visual directions were not accepted, as final and yet I could not bring myself to feel that the true level was as different from the visible plane of the ground as I knew it must be. But even when for a time the apparent plane was accepted and things near by, but at the moment out of view, were represented in spatial accord with what I saw, more remote objects that had not been seen during the experiment refused to come into the new system and stood stubbornly on their old plane.

The whole experience was thus so similar to the one with the inverting lenses that I hesitate to present it even in this brief outline. But under the circumstances the very similarity is a distinct addition to the data from the previous experiment, since it shows that the introduction of the new factor—that of distance—does not prevent an ultimate spatial concord. In such brief trials as this, one must of course hope only for some indications of the course the

experience would run in a much longer lapse of time; and such indications were clearly given, it seems to me, in the gradually increasing frequency with which localisations initially discordant were accepted as identical, and in a gradual enlargement of the areas within which such equivalences were felt. With this tendency apparent, it seems merely a question of time when the identifications would become presistent rather than occasional, and all-embracing instead of local and limited. The experiment thus suggests that the principle stated in an earlier paper—that in the end we would feel a thing to be wherever we constantly saw it—can be justified in a wider sense than I then intended it to be taken. I had in mind only those conflicts of place which arise from difference of position on the retina and which come to us psychically as difference of direction in the visual field. We may now, I think, safely include differences of distance as well, and assert that the spatial coincidence of touch and sight does not require that an object in a given tactual position should appear visually in any particular direction or at any particular distance. In whatever place the tactual impression's visual counterpart regularly appeared, this would eventually seem the only appropriate place for it to appear in.[1] If we were always to see our bodies a hundred yards away, we would probably also feel them there. All that is necessary is perfect uniformity, so that the sight of a thing may come to be unhesitatingly and unambiguously translated into touch-experience, and *vice versâ*.

The results may therefore be considered an additional obstacle to any theory of the interconnexion of the senses which assumes that their harmony requires an identical location of their images in external space, supposing this to have some intelligible meaning. The harmony evidently can occur when a literal superposition of the different perceptions is out of the question; so that any adequate view must provide for this astonishing disregard our minds display of absolute locality. The simplest explanation seems to me to be that a correspondence, point by point,

[1] Provided, of course, that the rest of the visual experience harmonised with this; *i.e.*, had the same relation to the given visual impression that the mass of the tactual experience bore to the given tactual impression. I do not imagine, for instance, that there would be harmony between touch and sight if with our present somatic sensations we constantly saw our head between our feet and the ground. Here the incongruity would not be that our head appeared at that particular distance or direction in the visual field, but because the relation among objects as reported by sight did not agree with their interrelations as reported by touch.

between touch and sight, is built up associationally; and only by actual experience does a person learn what visual position corresponds to any given tactual position.[1] As far as the actual feeling of appropriateness is concerned, any other visual position would do quite as well; but the association once established, a definite visual expectation is aroused by each tactile impression, and an appearance in any other than this anticipated locality seems distinctly incongruous. We have come to expect to see the object just *there*, and if we really see it elsewhere, we feel that sight has ceased to accord with touch, whereas, in truth, sight has merely ceased to accord with what its own previous reports had led us to expect. Since the definite direction which the expectation takes is due merely to the course of our previous experience, the actual harmony may come about under the most varied conditions—under any, in fact, which permit the growth of expectation and of an experience which constantly meets the suggestions thus aroused.

This view of the case makes room for our normal experience and for the results of experiments like that here reported; but some might feel that it is contradicted by evidence gained from persons cured of blindness. For if the harmony between touch and sight is a matter of smooth and rapid cross-reading from one sense to the other, gained by noting the location of simultaneous changes in the two sensory fields, a mind just entering on visual experience ought to be unable to translate visual positions into tactual, and the reverse. He must by actual trial learn what movements are necessary to bring his hand to a given visual place, by watching his hand (after recognising it by sight) and inhibiting those movements which are seen to carry its image away from the selected visual region, and continuing those movements which bring the image nearer its goal. But accurate off-hand pointing and grasping, under guidance of sight alone, would be impossible.

Yet there are statements in certain reports of operations for cataract which might well be adduced in proof of an immediate muscular appreciation of visual direction. Ware, for example, relates that his patient, a child of seven years, recognised as a square piece of paper a letter held before him, and said that it was longer in one direction than in the other. "On being desired to point to the corners, he did it with

[1] For a more detailed presentation of this as an associational correspondence of local signs, see *The Psychological Review*, Sept., 1897, p. 472 *et seq.*

great precision and readily carried his finger in the line of its longest diameter."[1] One must remember, however, that in this case the child seems to have had normal vision until toward the end of the first year, and he could always distinguish colours. A more careful examination might perhaps have shown some vague consciousness of position as well.

In the account Wardrop gives[2] of a lady operated on for cataract probably congenital, some of the statements certainly give the impression of considerable freedom in the visual control of movements, although it is not actually asserted that these went rapidly to the mark. On the evening of the day of the operation, she pointed out to her brother the hands of his watch as well as different figures on its dial. On the third day she "playfully pulled away" a handkerchief with which he had covered his face, and on the ninth day she pointed out correctly a "ticket" in a window across the street. These things were evidently reported to Wardrop by her brother and are not given from Wardrop's own observation. For when he speaks from his personal knowledge we find that some eighteen days after the operation, in describing some experiments on her, he says: "It may here be mentioned that when desirous of examining an object, she had considerable difficulty in directing her eye to it, and finding out its position, moving her hands as well as her eye in various directions, as a person when blind-folded or in the dark gropes with his hands for what he wishes to touch". This certainly implies that visual position in her case did not convey an immediate tactual meaning, and that the acts of which her brother tells must have been slower and more laboured than the narrative at that point suggests. The more critical physician saw things in a somewhat different light.

In the case of Noé M. reported by Dr. Dufour,[3] certain isolated phases of the testimony might likewise indicate a direct muscular appreciation of visual place. Thus, after some experiments, the patient is told to go to his room. Although his eyes are open, he immediately stretches out his hands and advances cautiously. Dufour stops him and says "'Hands down. Don't you see a shining yellow thing down there?' 'Yes.' 'Well, that's the door-latch; walk in that

[1] *Philosophical Transactions*, 1801, p. 386.

[2] *Ibid.*, 1826, parts 2 and 3, p. 529.

[3] *Guérison d'un aveugle-né*, Lausanne, 1876, quoted at length by Dunan, "L'espace visuel et l'espace tactile," *Revue philosophique*, xxv., 376. A somewhat similar case is that of Johann Ruben reported in the *Zeitschrift für Psychologie*, ii., 51; the pointing and grasping here were occasionally correct, although in general quite astray.

direction, and when you are there stretch out your hand.' The patient walks readily in the direction of the door, stops two steps short and directs his hand without much accuracy, and yet with evident purpose, off to one side of the brass handle, which he finally finds after groping around it." The groping is exactly what the view above presented would lead us to expect, and the only difficulty is in his starting off in the direction of the door as if the sight of the handle immediately showed him in what direction to move. The experiment seems to have been so loosely conducted that it really gives little evidence whether vision really had much to do with the movement in this instance. The physician's sternness might account for the "*facilité*" with which the poor peasant started off, and the direction of the door was gained perhaps from other than visual clues.

But it must not be supposed that the temptation to explain away evidence of this kind (I have given all the damaging testimony I could find[1]) is merely because it conflicts with some pet theory. It really conflicts most of all with the weight of evidence in just such cases. Where the experiments seem to have been most critically conducted and reported, the results are unambiguous, and show that visually guided movements are always cautious and tentative.

Franz, for instance, who seems to have been very careful and exact, and who had an unusually intelligent subject for his experiments—a young gentleman with cataracts from birth—obtained results exclusively of this sort. Several days after the operation the patient was shown a piece

[1] Perhaps some reference ought to be made to the oft-cited testimony of Cheselden's patient (*Philosophical Transactions*, 1728) and, later, of Home's first patient (*ibid.*, 1807), that the things they saw seemed to touch their eyes; which some might think implied an immediate and definite (even if we say erroneous) tactual localisation of visual impressions. Both of these patients were greatly distressed by the light, and this sense of distress—from the watery suffusion, the muscular spasms, and the pain in the eye-ball—was doubtless the same as if something were actually touching their eyes. But their naïve remark need not be taken as if they were psychologists and distinguished the pure light impression from its violent organic accompaniments. The experience was largely made up of muscular and tactual and pain sensations, and the fact that these determined the localisation of the experience as a whole teaches nothing as to the relative tactual locality of different places in the visual field. Home's second patient, who suffered little, testified that things did *not* seem to touch his eyes, but he could not say how far off they were. The other observers, so far as I can discover, say the same or are silent on this point. I have not seen Nunnely's nor v. Francke's report, nor that of Uhthoff's first case.

of paper with a horizontal and a vertical line on it. "When I asked him to point out with his finger the horizontal line," Franz writes,[1] he moved his hand slowly, as if feeling, and pointed to the vertical; but after a short time observing his error, he corrected himself. The outline in black of a square, six inches in diameter, within which a circle had been drawn, and within the latter a triangle, was, after careful examination, recognised and correctly described by him. When he was asked to point out either of the figures, he never moved his hand directly and decidedly, but always as if feeling, and with the greatest caution; he pointed them out, however, correctly." And various other experiments gave the same results.

This also is the testimony of Uhthoff,[2] who went carefully to work to test his patient with this problem distinctly in mind. When the bright little boy, operated on by him for congenital cataracts, was required, during the first experiments, to point to some prominent object which he evidently saw, he continually pointed quite beside the mark, and did this again in check-experiments. In two days, however, he learned to point out accurately the things in sight.

And finally, Vurpas and Eggli,[3] who also had this same question consciously before them, obtained similar results after operating on their little patient Louis. When he had learned to recognise visually an orange before him, and was required to grasp directly at it (rather than feel around for it, which he always did unless prevented), he invariably missed it, going to the right or to the left, as if sight gave no real assistance. The authors conclude that sight, in its original dissociated purity, gives no sense of direction; and Binet, in reviewing their work,[4] suggests that the results need only mean that the sense of direction given by sight alone requires time and training for its development, and these the child as yet lacked. I see no reason why they need mean even this; the facts may be accounted for even if we admit that the visual perceptions already gave some sense of direction, but of direction *confined within the visual system;* in other words, that even at this early stage the sight-perceptions were arranged with reference to each other, and thus possessed

[1] *Philosophical Transactions*, 1841, pp. 64-5.

[2] "Weitere Beiträge zum Sehenlernen blindgeborener und später mit Erfolg operierter Menschen," u.s.w., *Zeitschrift für Psychologie*, xiv., 195.

[3] "Quelques recherches psychologiques sur le sens de la vue chez deux enfants opérés de cataracte double congénitale," *Annales médico-psychol.*, juillet, 1896; reprinted almost in full in *L'année psychologique*, iii., 384.

[4] *L'année psychologique*, iii., 389.

mutual direction and locality, but this meant nothing for the child, because they formed an isolated system, out of all connexion with the rest of his experience. Time and training were necessary, then, not to develop this purely visual arrangement or direction, but to make it signify something in regard to the other sensory fields, and permit a translation of its various localities into muscular and tactual terms.

The motor bewilderment of the recently blind, when attempting to guide their acts visually, thus becomes quite intelligible from the point of view already suggested by the results with the inverting lenses and with the mirrors. So that I cannot feel that the observations on these persons, when we consider the reports as a whole, rather than occasional statements in them, are really opposed to the view presented. Inasmuch as they offer additional facts which are exactly what that view would lead us to expect, they might even be regarded as favouring my own explanation to a certain extent.

But some might admit that in our developed and normal consciousness touch and sight severally give us a sense of locality, and that the tactual positions become connected with the visual only by observing simultaneous changes in the two senses, and that any visual place could consequently be identified with any tactual place whatever under a suitable sequence of impressions, and yet they would perhaps hesitate to say that the two forms of localisation were not ultimately reducible to one. The experiments on persons like myself, who have seen and touched for years, they would hold, teach nothing as to the sources of the spatial arrangement,—as to whether it comes originally from touch alone, or from sight alone, or from both independently.

I would of course readily acknowledge that the experiments offer nothing decisive of this underlying question. The mere fact that the explanation of my own experiences would also account for the motor confusion of persons suddenly attaining sight is no proof that their confusion really is due to the conditions set forth in this explanation. Their behaviour could arise from other circumstances—from a want of original spatial character in sight, as Berkeley and others have supposed, or from a lack of this character in touch, as many persons in daily intercourse with the blind believe.[1] But while experiments on a person long accustomed to both sight and touch give nothing conclusive on this question of

[1] See, for instance, Dunan: "L'espace visuel et l'espace tactile. Observations sur des aveugles," *Revue philosophique*, xxv., 357 *et seq.*

the original spatial character of our senses, I feel that they have at least a definite bearing on the problem in so far as persons base their decision directly on the difficulty those born blind have in visually recognising familiar forms and objects, as well as in reacting appropriately in their presence. As to the reactions, enough has been said to show that they are a poor basis for such an argument; they do not imply that touch and sight are absolutely dissimilar, but only that the localities in one are not yet identified with definite localities in the other. In regard to the visual recognition of objects familiar by touch, the facts become somewhat easier to understand when one has passed through the ordeal with lenses and mirrors. The mere inversion of the field of view may cause a surprising disturbance of discrimination and recognition, especially in its nicer forms; so that the shape of an object may not be as exactly noticed as before the inversion, and many things plainly in view may be entirely overlooked. I remember looking at an open fire-place, under these circumstances, for some time, without noticing that a large piece of wood had rolled out on the hearth and was filling the room with smoke. The odour was the first effectual warning I had of what had happened. And in walking through a familiar village on a bright moonlight night I was usually unable to recognise my surroundings. And yet the sifting-out of the common space-relations in two sorts of perception so closely akin as upright and inverted vision must be mere child's play in comparison with the detection of the features common to tactual experience and to an absolutely novel spatial order such as that of sight. The very difficulty of analysing the new experience, of selecting points of attack, and of discerning what is significant or what is not, in the infinite confusion of lines and colours—this would certainly be sufficient to account for the frequent, though not universal, failure to recognise what is common to both new and old, without our inferring that the new and old have absolutely nothing in common. In this indirect way, by weakening some of the motives for denying an original spatial character to one of these senses, the present experiments may possibly have a larger application.

But of course primarily they have to do with matters nearer at hand; with the process by which the different sense-perceptions, whatever may be the ultimate source of their extension, are organised into one harmonious spatial system. The harmony is found to consist in having our experiences meet our expectations. When sight suggests some definite place in the touch-field and the object is

actually felt in that position, and when touch suggests some definite visual position where the object shall be seen, and it is actually seen there, sight and touch are then harmonious. The essential conditions of the harmony are merely those which are necessary to build up a reliable cross-reference between the two senses. This view, which was at first based on the results with the inverting lenses, is now given a wider interpretation, since it seems evident from the later experiment that a given tactual position may have its correlated visual place not only in any direction, but also at any distance, in the visual field.

V.—KANT'S PROOF OF THE PROPOSITION, "MATHEMATICAL JUDGMENTS ARE ONE AND ALL SYNTHETICAL".

By Bruce McEwen.

It needs no very profound analysis of the *Critique of Pure Reason* to demonstrate that the Æsthetic, as it stands in the forefront of Kant's system, fulfils a distinctly double purpose. Leaving aside the doctrine of Time and regarding only the doctrine of Space, we find that it presents itself to us under two quite different aspects, according as we look at it from one or the other of two points of view towards which the author himself repeatedly directs our attention. Considered alone and by itself, the Æsthetic has a purely dogmatical, assertoric or didactical value: it is a theory as to the nature of Space and of Spatial existences. But when we pass beyond this first crude conception of the Æsthetic, and begin to trace out the various lines of connexion, which lead to every part of Kant's speculations, when we examine the internal arrangement of the matter of the *Critique* and the relations of interdependence and mutual defence, which Kant strives to establish between all portions of his system, there is gradually unfolded before our eyes the higher purpose of the Æsthetic, as a first apology for the whole. However much we may prize the content of the doctrine of Space for its own sake, still to the true Kantian it will always seem relatively more important to regard the Æsthetic as giving us, in Kant's own words, "one part of the answer necessary for the solution of the great general problem of the Transcendental Philosophy, namely the problem: How are synthetical propositions *a priori* possible?" The vindication of those forms of knowledge, which are at once synthetic and *a priori*, is the object of the new Criticism from beginning to end, and with his doctrine of Space and the corresponding real science, Pure Mathematics, Kant introduces the thin end of the wedge destined to cleave asunder the sceptical denial of the reality of all knowledge of this type. "When Hume felt the truly philosophic impulse to cast his glance over the

whole field of pure (synthetic) knowledge *a priori*, he somewhat recklessly excluded a whole province of such knowledge, —perhaps indeed the most important province,—namely Pure Mathematics." Ask Kant for an instance of this real knowledge, and he is found too cautious to mention the name of Metaphysics: he "points to a Euclid" and says, Here! "Pure Mathematics, in spite of the attacks of the hardiest sceptic, stands, like a Colossus, for the proof of the reality of a knowledge enlarged and augmented through Pure Reason alone."

Now from the latter of the points of view, thus briefly indicated, Kant's object is to prove two leading characteristics of Mathematics; first, that it is synthetic knowledge; second, that it is knowledge *a priori;* and for the proper understanding of the opening chapters of the *Critique* it is absolutely necessary to keep the two parts of this proof distinct. Neither of them depends in the very least degree upon the other; either might be invalid, while the strength of the other remained unweakened. The terms 'synthetic' and '*a priori*' are far from being indispensable to one another; the often repeated use of them in conjunction, to describe different kinds of knowledge, implies in each case two distinct investigations of the nature of the knowledge so described. In the present essay we shall examine only the process, by which Kant sought to prove the synthetic nature of Mathematics, and leave the other investigation strictly out of account. Kant's final view on the point, which concerns us here, is summed up in his brief statement: "Mathematical judgments are *one and all* synthetical"; we shall see that Kant reached this result only after a long struggle, in the course of which all varieties of mathematical judgments came directly under his consideration: we shall try to dispose of those objections to Kant's doctrine, which deny the perfection of his induction, and seek to overthrow it by producing particular instances from mathematics of analytic judgments supposed to have been overlooked by Kant. Questions as to the *a priori* nature of mathematics, or the validity of the distinction between analytic and synthetic judgments generally, will be treated as irrelevant: our procedure is primarily exegetical, and, if at any point it be necessary to defend Kant's doctrine, our defence will be confined entirely within the limits already assigned to our investigation.

To the historian of philosophy nothing is more obvious than that Kant was merely following the example of a long and illustrious line of predecessors when he entered upon the realm of Philosophy from the side of mathematical

science. Indeed so commonplace is this observation, that in consequence the historian is usually led to neglect the vast difference which distinguishes Kant's first appearance from that of the many other "mathematical philosophers". The followers of Descartes, especially on the continent of Europe, had pinned their faith in mathematical matters to the analytical method introduced into geometry by their great master. The comparatively modern science of Algebra was applied to the problems of Space and Motion, and in the hands of such colossal geniuses as the Bernouillis, Leibniz and Euler problems, which had long been the despair of the Euclideans, now found a simple and accurate solution. For the time there appeared to be no limit to the powers of the new mathematical analysis. In Geometry, in Dynamics, even in the mixed sciences, Astronomy and Physics, it absorbed, transformed and reproduced all previous results with such startling rapidity that the credit of discovery has often been wholly filched away from the original author by those who merely borrowed his thoughts.[1] But alongside of this rapidly advancing Cartesian system the old conservative methods, which had come down from the days of Pythagoras and Plato, always retained many illustrious intellects in their service. The English school of Scientists, represented by Boyle, Hooke, Newton, and the other founders of the Royal Society, continued to give ample proof of the vitality of pure geometry and experimental investigation in science. Still, as we have said, their discoveries were no sooner proclaimed than appropriated by the analytical method, all signs of the source from which they came being thereby obliterated.

Accordingly it must have been with feelings of surprise that Kant's contemporaries beheld one who was born into and educated under the new analytical school throwing off the traditions of his time, and returning to the methods they were wont to consider superseded. From the outset Kant attached himself unreservedly to the "Natural Philosophy" of Newton, adopting at the same time the peculiarly Newtonian preference for pure geometrical methods. Kant, it must never be forgotten, was a mathematician of no mean order; even if we disregard his professedly mathematical writings, we have sufficient indication of this fact in the many references to Mathematics in his philosophical works,

[1] A most striking instance of this tendency may be noticed in the case of the invention of the Differential Calculus originally discovered by Newton, but afterwards almost universally ascribed to Leibniz, who gave it the convenient algebraical form in which it now appears.

and in his private notes (*Lõse Blätter*), which are full of mathematical calculations upon knotty points, that occupied his attention from moment to moment. And yet there is not a single instance in all Kant's writings of his using the Cartesian method in geometry. He repeatedly praises it as being "rich in discovery" (*erfindungsreich*), he quotes its formulæ with a facility which betokens long acquaintance with them, yet in his own investigations he altogether disdains its aid.

And Kant was not content to limit his mathematical speculations to the pure geometrical method without giving good reasons for his preference. In Dynamics Newton had often gone considerably out of his way to preserve the purity of his procedure; his *Principia* explain the motion of a body, moving under certain forces, by actually following out its path on paper from point to point before the eyes of the reader. Thus by strictly geometrical methods the orbits of the moving masses are depicted *in concreto*, and when the process is finished the nature of these orbits is intuitively deducible from the nature of their construction. In direct contrast with this somewhat slow and laborious process the Leibnitian method simply writes down a symbolical expression for the forces acting on a mass, and by a single swift stroke (Integration) another is deduced, which is the perfect algebraic expression for the curve described. So far, the analysis appears to have been concerned with mere signs in the abstract, but a serious difficulty now presents itself, when we try to interpret our results. We work with symbols but these have no signification, except indeed as interpreted, and for this interpretation the analytical method must ultimately call in the aid of pure geometry, for every equation used depends absolutely for its meaning upon the propositions of the Euclideans. If we use an example quoted by Kant himself we might suppose the formula, $ax = y^2$, to be the result of an algebraic analysis of the data in some problem or other: now we know that this represents a certain curve described, but it is only by a knowledge of the pure geometrical properties of Conic Sections that we are enabled to identify it with a parabola.

It is a distinct merit of Kant's, though, I believe, he has never received the full credit of it, that he clearly perceived and as boldly proclaimed the incompleteness of the Cartesian method at the very time when it was generally considered to be an instrument of mathematical research far more powerful than the pure geometry, which it really involves, and from which it was originally derived. And it was this

clear insight into what is fundamental in Mathematics that enabled Kant, as every student knows, to confine the question of the nature of all geometry with the most systematic consistency within the limits of the Euclidean method. As early as 1763, in his treatise on the *Principles of Natural Theology*, Kant takes his stand definitely within these limits and announces the doctrine that "the definitions of Mathematics are entirely synthetic, while those of Philosophy are analytic". "The conceptions, which I expound in Mathematics, are not given before the definition, but have their origin always from it. A 'cone' may mean what it will, but, within the realm of Mathematics, it is formed by the arbitrary representation of the revolution of a right-angled triangle about one of its sides. Here and in all other cases the exposition finds its origin through Synthesis." The definitions of Philosophy on the other hand, Kant at present considers to be analytic in general, yet instances may be produced, he says, "from which we might draw the conclusion that the expositions of philosophers may sometimes be synthetic and those of the mathematician analytic". "Leibniz," he explains, "formed the conception of a simple substance, which had only confused representations, and called it a slumbering Monad. Here he has not expounded (*erklärt*) this monad, but merely formed a conception of it (*erdacht*), for the conception was not given to him, but was first created by him." Kant then is quite willing to believe that philosophic definitions may be of two kinds but he sturdily denies that the same is true of Mathematics. "The expositions of the mathematicians," he says, "have often been analytic in their nature, I admit it, but yet there has always been an error involved. For example, Wolf considered geometrical similarity from a philosophic point of view, so as to bring this particular case under the general conception of similarity." But Euclid's definition of similarity runs: 'Rectilinear figures are said to be *similar*, when they are equi-angular and have the sides about the equal angles proportional with a corresponding definition, if need be, for curvilinear figures, so that "for Geometry nothing depends on the general definition of similarity".

Here then we have Kant's first detailed account of the nature of mathematical definitions, and this account he never saw fit to alter, save perhaps by multiplying and improving his illustrations of its truth. Throughout the remainder of his writings it is always laid down that the mathematician in defining proceeds "by constructing his conceptions, and not by analysing them". When this

favourite phrase is contrasted with Kant's more general statement, that Mathematical judgments are always synthetical, it has again and again been pointed out that this latter expresses more than was really necessary for Kant's purpose. It is admitted that the three moments of all mathematical procedure consist, as Kant has said, of Definition, Axiom and Demonstration, yet the synthetic nature of Mathematics generally is sufficiently proved when it is shown that the Definitions are synthetic. But with any such partial result Kant is not satisfied: he extends his inquiries at once to every part of mathematical processes. Here, unfortunately, Kant's opinions were slow to crystallise into their final form, and the result is that there is always an appearance of wavering about his statements. At times he seems to admit analytical principles into mathematical method, again to deny them, sometimes to give expression to both views almost in the same sentence.

The difficulty lies in the fact that, in Algebra and Geometry alike, the mathematician speedily passes away from an actual representation of real things to a consideration of letters, figures, or words, which, for the time being, are treated as mere signs. Take for example an ordinary mathematical syllogism—

$$x = y$$
$$\text{and } w = v$$
$$\therefore x + w = y + v \text{ and } x + w > y.$$

The letters, x, y, w, v, here used, may be mere algebraic symbols, or on the other hand in pure geometry they may stand for lines, or plane angles, and so on, but in any case certain fundamental propositions (*Grundsätze*) are involved in manipulating them, namely two well-known Axioms of Euclid: If equals be added to equals the wholes are equal; and: The whole is greater than its part. Now these "axioms" are quite obviously of a different class from such axioms as: Two straight lines cannot enclose a space; which is Kant's best example of a purely synthetic and intuitive proposition. This latter axiom is applicable only in geometry, while the two former seem to extend to Algebra, and even to the non-mathematical procedure of human Reason. Are such axioms then synthetic? Are they not rather analytic? It is possible, says Kant in one passage, "to prove them in strict philosophic fashion out of mere conceptions"; it can never be "the proper business of Mathematics to prove that the whole is greater than the part". And yet we may quote a passage from the Transcendental Æsthetic which runs: "Every geometrical axiom is derived from intuition

a priori, and with apodeictic certainty and never from general conceptions". At first sight there appears to be considerable confusion here, and many of Kant's opponents have promptly taken advantage of it to deny his theory, that mathematical judgments are one and all synthetical. Still the fact remains that in Kant's earlier view a synthetic nature is claimed only for the Definitions of Mathematics: the definitions are synthetic, but the remainder of mathematical procedure Kant still considers to be in great part analytic.

"In Arithmetic," he says, "we treat not the things themselves but their signs which indicate the magnitude of the things and their relations as greater and less, etc. Afterwards we work with these signs according to easy and sure rules by transposition, addition or subtraction, and different sorts of operations, so that the things indicated by the signs are in the meantime completely dropped out of consideration, until finally in the conclusion the meaning of the symbolic result is deciphered." By Arithmetic Kant means "both the general doctrine of indeterminate magnitudes," or Algebra, and the "particular doctrine of numbers, where the relation of the magnitudes to unity is strictly determined," Arithmetic in the ordinary narrow sense. The view expressed in the foregoing quotation is that, so long as we work with signs, we proceed *in abstracto* and analytically without being assured that any real object corresponds to our signs *in concreto*. But in Mathematics "the meaning of the signs must be sure" at every point, and therefore a synthetic and intuitive process must precede our using signs; in fact when we say, Let x, or let the figure 3 represent the objects, this process is always subject to the condition that it be "possible for these signs actually to represent the things" and that "one should clearly understand what meaning he assigns to them". Otherwise the symbolical result we reach can never be properly deciphered, indeed may be perfectly absurd. Every schoolboy knows how clearly he must lay down the meaning of his symbols before he begins to use them, for he has already experienced, if at least he is conscientious, many an instance of the complete bewilderment which ensues, when after a long exercise in Arithmetic he obtains an answer in figures, say 19, but knows not whether it is 19 men, 19 shillings, 19 eggs, or 19 of anything else real or imaginary. Suppose an answer so obtained to be numerically correct, then from his earlier point of view (in 1763) Kant would say that the analytical process of sign-manipulation was correct, the synthetic and intuitive adoption of signs instead of things equally cor-

rect, and their "relations as greater or less," etc., properly understood, but the corresponding synthetic and intuitive retranslation of the signs into the concrete was defective. In Pure Geometry, on the other hand, we certainly do work with signs "by transposition, addition or subtraction, and other operations," but we retain throughout a concrete sense representation of our process from point to point in the figure which we construct, we are continually passing from mere signs to their meaning in the figure, and therefore in this case the same difficulty does not appear. Mathematics, Kant says in fact, always presupposes synthetic processes, yet its method may be largely analytical.

Now this double view of the nature of mathematics in general continues to pervade Kant's work at least down to the publication of the first edition of the *Critique*. In the *Dissertation* of 1770, where "the distinction of Sense and Intellect had come to Kant's aid," his doctrine receives a new verbal setting, but in its essence it remains unchanged. The intuitive and synthetic procedure of Mathematics is represented as characteristic of the use of the faculty of sense, intellect proceeds by analysis. "Of the objects of the intellect," says Kant, "men are given no intuition, but only a symbolical cognition, and the use of the intellect is possible to us only by means of universal concepts *in abstracto* and not by singular instances *in concreto*." This use of the intellect through universal concepts *in abstracto* is the exact equivalent of the "Metaphysics," which Kant so clearly distinguished from geometry in his *Monadologia Physica* of 1756 and later in many detached passages. When the Geometrician sets out to prove that space is infinitely divisible he constructs a figure, in which he says: Draw an "infinite" number of straight lines from a fixed point. Using this symbolical figure *in concreto*, he sees intuitively that the division of Space must go on without end. The philosopher, on the other hand, argues that he can, in thought, remove all composition from a material body, which nevertheless must still consist of real substance, and therefore he concludes that, when all composition is removed nothing but simple substances are left. Here we have neither figures constructed, nor signs introduced, but from mere consideration of universals *in abstracto* the philosopher can draw his conclusion: All composite substances consist of simple parts. Such, in short, is the essence of Kant's earlier treatment of this 'Antinomy,' but now he can give a new colouring to his older outline. Philosophic procedure is concerned with the objects of intellect, mathematics with those of sense. But

just as Kant formerly felt unable to characterise all the procedure of Mathematics as synthetic and intuitive, so now he cannot yet affirm that it is entirely concerned with objects of the sense-faculty. "Pure Mathematics," he says, "considers Space in geometry, and Time in pure Mechanics. To these we must add a certain conception, namely the conception of Number, dealt with by Arithmetic. This conception, in itself indeed, is of an intellectual nature, but nevertheless its realisation *in concreto* requires the aid of the notions, Space and Time (in adding together quantities in succession and combining them)." And so it comes about that, while Kant can announce his result: "Therefore pure Mathematics expounds the form of all our sense-knowledge and is the organon of every kind of intuitive and distinct cognition"; he is still forced to except Arithmetical procedure, a most important exception from a general treatment of Mathematics. To be sure, in "Arithmetic" we have "*cognitio symbolica*" if we only use that phrase vaguely enough, and we might therefore suppose it was something akin to the symbolical knowledge we have of objects of the intellect in Philosophy.

Now after 1770, if Kant intended to make his treatment of "Arithmetic" consistent, two courses were open to him. He might boldly deny that it was in any sense a part of Mathematics, and no doubt the consequences of this denial would, in Kant's time, have been easily accepted by many philosophers. He might affirm that the principles of Arithmetic were purely analytic, that it was concerned only with objects of the intellect and therefore proceeded not by intuition but only by analysing universal concepts, in fact, by purely symbolic cognition. But by proclaiming such a result Kant would at once have ranged himself on the side of the philosophic defenders of the Cartesian 'mathematical analysis,' for the central assumption of their theory of mathematics lies in some distinction between Algebraical and Geometrical method, such as that which would have been directly implied by Kant's adopting the course we have suggested. Or if Kant hesitated to regard "Arithmetic" as a branch of Philosophy and wished rather to bring it into strict accord with pure Mathematics (*Mathesis Pura*), which he formerly spoke of as limited to Geometry and Mechanics, it was necessary for him to prove that the procedure of "Arithmetic" was really non-philosophical. Now Kant chose this latter alternative, and accordingly, in 1781, we can easily trace the presence of a distinct improvement in his doctrine.

In the paragraph of the *Critique* on the Axioms of Intuition

he introduces for the first time a statement to the effect that "self-evident propositions as to the relations of numbers are certainly synthetical," and produces as proof an examination of his much-misunderstood instance of Arithmetical procedure, the addition of seven and five to make twelve. "The proposition, that $7 + 5 = 12$, is not analytical." "For neither in the representation of seven, nor of five, nor of the composition of the two numbers, do I cogitate the number twelve." If we borrow from the later defence of this thesis in the *Prolegomena*, we find that Kant considers it absolutely necessary in numerical addition "to go beyond our conceptions and have recourse to an intuition". We must represent before ourselves five fingers or five points, adding five to the number seven "by means of this material image, and by this process we at length see the number twelve arise," just as by representing to ourselves on paper the figure of Euclid's thirty-second proposition we can conclude that the sum of the interior angles of a triangle is two right angles. In neither case does Kant mean that the material image is necessary: it is only an empirical means of aiding us to reach the pure non-empirical intuition which lies behind. We should very much like to defend Kant's analogy between pure and empirical intuition, inasmuch as the many attacks directed against it in this connexion seem to be both ill-founded and inconclusive, but to do so would lead us far beyond our immediate task of exegetical exposition. And therefore we take Kant's argument to be quite sufficient of itself to warrant his conclusion, that "Arithmetical propositions are invariably synthetical," and ask only how much Kant here claims to have proved. He expressly says that such propositions as $7 + 5 = 12$ are not axioms but "numerical formulæ," giving (in 1781) the ostensible reasons that we cannot have an infinite number of axioms and that axioms must be universal as in geometry. In 1783 they bear the simple name of "propositions" (Sätze), and no mention is made of their non-axiomatic nature. They are treated as corresponding to the principles on which pure Geometry founds such principles as: "The straight line between two points is the shortest," but although Kant usually speaks of this example in language which implies that he himself regards it as an Axiom, it nevertheless ranks as a proved Proposition in Euclid, and diverse views of its real nature have always been common among mathematicians. For this reason it would be hazardous to attempt any elaborate comparison of these Arithmetical propositions with other instances of synthetic *a priori* propositions, but yet, when

Kant has proved the synthetic nature of these "numerical formulæ," it would be quite as superfluous to point out that they are involved in all Arithmetical procedure, as it formerly was that the Definitions, Axioms and Principles of Euclid are involved in all Geometry. In both cases Kant has penetrated to what is obviously fundamental in Mathematics; it is immediately clear that all mathematical arguments, whether in Geometry or in Arithmetic, do ultimately depend upon an intuitive and synthetic groundwork. And if we admit that the most elementary processes in each branch of Mathematics are strictly synthetic, it is certain that this synthetic character will cling to all judgments that follow them. "For although a synthetic principle can certainly be discerned by means of the principle of Contradiction, yet this is possible only when another synthetical proposition precedes, from which it can be deduced." When the synthetical proposition that 'two straight lines do not enclose a space' is given, we can deduce directly from it, that two particular straight lines AC and AB, meeting at A, do not meet in any other point, but this conclusion, though analytically derived from our general principle, is none the less itself purely synthetical.

But before Kant could honestly formulate his comprehensive statement that 'mathematical judgments are one and all synthetic,' it was necessary that his view of the fundamental principles of Mathematics should be absolutely uniform, recognising no exceptions, and in 1781 it was just at this point that Kant failed. In the first edition of the *Critique* (p. 163) he deliberately styles a large number of Euclid's "Axioms" analytical, and inasmuch as it would be folly to exclude them from the category of mathematical judgments, he was fully justified in postponing the announcement of his final opinion. "As regards the quantity of a thing (*quantitas*)," he says in the passage referred to, "namely in answering the question, How great? we have at hand various propositions synthetical and immediately certain (*indemonstrabilia*), but we have in the proper sense of the term no Axioms. For example, the propositions, 'If equals be added to equals the wholes are equal,' 'If equals be taken from equals the remainders are equal,' are analytical, for I am immediately conscious of the identity of the production of the one quantity with the production of the other, whereas Axioms must be synthetic propositions *a priori*." Now this remark applies to no fewer than nine of Euclid's twelve axioms, and were we to judge of all of the axioms *de quantitate* by the two examples Kant gives, we might infer

naturally enough, though perhaps rashly, that such axioms really were general principles applicable not only in Geometry and Arithmetic, but also, as we have already remarked, in all human reasoning, and therefore we might conclude that their proof was not completely attained if we attempted it mathematically. We might decide, and, I firmly believe, Kant's opinion in 1781 would support our decision, that Mathematics is here borrowing general principles proved analytically by Philosophy and applying them for her own particular purposes, not as axioms, for, as Kant states in his *Logic* (§ 36), "analytical propositions never are axioms (*axiomata*) but depend upon the identity of conceptions (*acroamata*)". But, as a matter of fact, if any one should try upon Kantian principles to defend Kant's statement, that we have no "axioms" *de quantitate*, we could at once deny this to be true within the sphere of Mathematics, by producing a positive instance of such an axiom, an instance which, so far as I see, admits of no doubt, namely the eighth axiom of Euclid: "Magnitudes which can be made to coincide are equal". Its very phraseology indicates that we are to superpose two magnitudes in pure intuition in order to see their equality; it certainly is an axiom *de quantitate* (I should say it is the fundamental axiom of quantity in Geometry), and no analysis of conceptions could ever produce it. Now I do not know what the test for Equality in general may be, I have serious doubt whether any such exist, but in Geometry I have a truly geometrical and spatial test of geometrical equality in the coincidence of superposed figures. And if a pure spatial intuition of the coincidence of two figures be the only means by which we can know them to be equal, then all axioms as to geometrical equality directly involve an intuition of this nature and therefore are like the eighth axiom synthetic. Indeed, whenever we compare any two geometrical figures, whether with regard to equality or inequality, we must in the end resort to superposition and an intuitive perception of their relation to each other, and for this reason I consider all axioms *de quantitate* to be perfectly synthetic.

But Kant's subsequent silence on this point makes it for ever impossible to discover whether such considerations had any real influence upon him or not. True, the passage we have opposed was neither obliterated nor altered in the second edition of the *Critique*, and yet I think there is in that work quite sufficient indication that Kant was well aware of the deficiencies of his earlier position. In the fifth paragraph of the Introduction, which appeared for the first

time in the *Prolegomena* and was literally transferred from it to the *Critique*, Kant seems to repeat his former doctrine. "Some few fundamental principles," he says, "which are preposited by geometricians, are indeed really analytic and depend upon the law of contradiction, but they serve, after the fashion of identical propositions, only as links in the chain of method, and not as principles,—for example $a=a$, the whole is equal to itself; or $a+b>a$, the whole is greater than its part." Here the old examples are dropped and of the two substituted the latter alone is a recognised axiom of Euclid. There certainly is an axiom which runs, Things which are equal to the same thing are equal to one another; but I know of no geometrician who ever thought it necessary to preposit the law of Identity $a=a$ to his works. But let that pass and let us understand Kant to mean that two analytical propositions are actually used by mathematicians. Then read the next sentence, "And yet even these same propositions, although they are valid according to pure conceptions, *are admitted in Mathematics* only for the reason that they can be presented in intuition". Now these words mean, as plainly as words can, that in Mathematics these same principles are synthetic, which in the previous sentence were called analytic. I do not believe that Kant could quote the law of contradiction in one sentence and then proceed to break it with his next; some explanation of the disagreement must be found, and I think a sufficient explanation has already been shadowed forth in our own discussion of axioms *de quantitate*. The general statement of any of these "axioms" may be analytic, just because when formulated most generally it is intended to be applicable to all parts of experience, but in Mathematics it has its application confined to questions of mathematical magnitude, which, as we have said, always depend ultimately upon direct intuition. The logical or analytic proposition, the whole is greater than its part, may have a vast variety of different meanings under different circumstances, but in Mathematics it has a meaning it can have nowhere else. If in Geometry we wish to compare any two quantities as to their relative magnitude, they must be superposed and their equality or inequality intuitively perceived; before we can say that one quantity is greater than another, this same intuition must have preceded our judgment, that is to say, we must regard the two as superposed one upon the other. Thus it comes about that the proposition, $a+b>a$, is "admitted in Mathematics only for this reason that it can be presented in intuition".

Moreover the general analytical expression of this axiom

could never be applied in Mathematics without leading at once to perfect absurdities. The circumference is 'a part' of the circle if we use the term 'part' in the general non-mathematical sense, and yet for geometry it is absolutely inane to say, that the circle is greater than the circumference, for a plane surface of two dimensions can never be superposed upon a curved line of one and therefore can never be compared to it in magnitude. If we borrow Kant's language concerning Space generally we might say, that a geometrical whole contains all its parts *in se, non sub se;* the parts of a line are lines and not points, a plane is divided by geometry into planes, a solid into solids. But the general or philosophic conception of a whole, from which is derived the analytic expression corresponding to Euclid's ninth axiom, contains its parts *sub se* and therefore the analysis of it can never give us a principle applicable as a geometrical axiom. The words 'whole' and 'part' have two quite distinct significations in Philosophy and Mathematics, while Mathematics has simply nothing to do with the philosophic meaning of 'greater' and 'less'. Accordingly in his next line Kant continues, "What commonly causes us to believe here, that the predicate of such apodeictic judgments is already contained in our conception, and that the judgment is therefore analytic, is merely the equivocal nature of the expression". Every word in Euclid's ninth axiom has a meaning peculiar to Mathematics and foreign to the ordinary usage, so that, unless we clearly distinguish the two applications of our one principle, we are apt to term it analytic in circumstances, under which its analytic meaning is at once false and absurd. And yet it is easy to see the danger of error, which must always confront the mathematician, when he expresses a geometrical axiom in words identical with those of a logical and analytical formula. "We must," says Kant, "join a certain predicate in thought to a certain given conception, and this necessity cleaves already to the conception. But the question is, not what we must join in thought to the given conception, but what we really think in conceptions though only obscurely. Then it becomes manifest that the predicate pertains to these conceptions, necessarily indeed, yet not immediately, but only by the mediation of an intuition, which must be added to the conceptions." In these axioms we use certain conceptions, which, to borrow a modern phrase, already have a certain connotation, but for purely mathematical purposes this connotation is quite valueless. Even though it be settled that a certain conception is necessarily joined to certain predicates, this junction

may be effected either analytically or synthetically, that is, either immediately or mediately. Now when in Mathematics we ask the question, What do we really think in a conception? we must add an intuition to that conception, and apart from such an intuition no real mathematical judgment arises. Kant's meaning in the paragraph, from which we have quoted, I take to be perfectly plain. He has already pointed out that all mathematical judgments are synthetical with the exception of "certain principles which serve as links in the chain of method". But on a further examination of these apparently analytical principles, Kant finds that they are admitted in Mathematics only conditionally; they are not accepted simply because Philosophy claims to guarantee their validity from pure conceptions, they must from the first have their truth made self-evident by means of an intuitive representation of a particular sensible and concrete instance, just as is necessary in geometry for the acceptance of the axiom, that two straight lines cannot enclose a space. Inside Mathematics these axioms are synthetic and their analytic appearance is a mere delusion brought about by the fact that the words, in which they are expressed, have another distinct and non-mathematical interpretation that really is analytical. And thus in 1783 the universal affirmative proposition is possible for the first time: "All mathematical judgments, without exception, are synthetical," for the former supposed exception is now finally removed.

At this point we intend to discuss shortly a few of the criticisms that have been passed upon Kant's view of mathematics, not so much because we wish to defend Kant's doctrine in a way which must necessarily lead us beyond the study of Kant's own writings, but because so many of these criticisms seem to imply a different interpretation from ours of the passages which discuss axioms *de quantitate*. We have neither time nor inclination to treat of those arguments which object to Kant's doctrine of the synthetic nature of mathematical definitions, and by producing particular instances seek to cast doubt upon his whole theory. The statement, that the conception of a triangle contains the mark of having three sides, is a perfect type of them, and I confess it is difficult to regard such arguments seriously. I wonder how often in his works Kant lays down the maxim that Mathematics proceeds by construction of conceptions, always assuring itself by intuition of the possibility of the object to which they correspond. Without hoping ever to convince any one, to whom such an argument as that mentioned above seems conclusive, I would merely suggest for

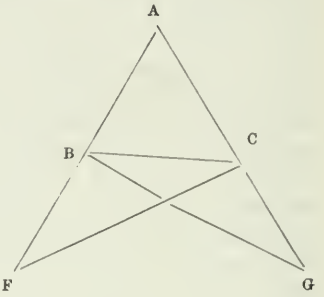
his consideration a true example of a proposition, which is analytical in Mathematics, namely, "A Duangle is a plane figure bounded by two straight lines"; and I would ask what part of Mathematics this definition occurs in? But in those criticisms of Kant's doctrine which discuss the nature of axioms *de quantitate* we have to deal with objections of quite another class. These arguments have their weight considerably increased by the fact that Kant's own words can so often be quoted in such a way as apparently to support them. Indeed we might safely say that it is universally considered to be Kant's final opinion of axioms *de quantitate* that they are analytic, and of course it is then easy to deny the statement that mathematical judgments are always synthetical. But such a view can only be held by those who are prepared either to ignore or explain away the glaring contradiction we have pointed out. One well-known commentator[1] has published a theory that the sentences in which Kant in our view of the matter declares the mathematically synthetic nature of axioms *de quantitate* have no immediate reference to those axioms. Therefore there must be a displacement of the order of this paragraph due either to a printer's error or to the author's negligence. It is supposed that Kant agrees to consider axioms *de quantitate* as analytic, and that the sentences which seem to contradict this view were originally penned in some quite different connexion from that in which they now stand. We have already tried to point out that such an artificial explanation is unnecessary and would indeed leave the opening statement of the general nature of mathematical judgments ill-founded. Moreover a displacement of a paragraph, so serious as that suggested here, might perhaps have been possible on one occasion, but that an author should have copied the same section literally into a work four years later, without correcting its error, seems to me an untenable hypothesis. The argument must be taken as it stands and we venture to claim that our explanation of it is the only one possible.

Of the many particular instances with which critics seek to confirm or illustrate their interpretation of Kant's views on those axioms we shall take only one example and endeavour to show, on mathematical grounds, that it is a fallacy. It is said that the Law of Identity, a thing is equal to itself, is largely used in Geometrical proofs after the fashion of an

[1] The objection here is not to Prof. Vaihinger's theory of "a leaf-displacement in the Prolegomena" but to the use made of the theory in explaining this passage in his "Commentar," vol. i.

analytical proposition. And the illustration given is the use of an angle, which being "common to two triangles," often helps us to prove them equal in every respect. Now in Euclid the first case of such procedure occurs in the proof of the fifth proposition, where we have the following argument. (We presuppose Euclid's construction.)

In the triangles FAC, GAB,
FA = GA,
and AC = AB,
and the angle A is common to
the two triangles,



therefore they are equal in every respect.

Here the conclusion follows directly from the fourth proposition which proves the equality of two triangles by superposition. But it must be noticed that, when we superpose the triangle FAC upon the triangle GAB, we must place the angle BAC in the entirely new position CAB. In fact we must invert the angle or, putting it with empirical crudeness, we must turn the paper over, and then we see that the angle is not changed. I should distinctly deny it to be an analytic proposition, following from the law of Contradiction, that the angle A is equal to itself inverted in this way.[1] That A = A inverted is a proposition eminently synthetic but in Geometry undoubtedly true. While no geometrician would ever think of denying the Law of Identity, yet I would assure any of Kant's critics that an instance of an identical proposition openly formulated in Mathematics cannot be found.

In his *Doctrine of Method* Kant lays down that "the ground-evidence of Mathematics depends upon Definitions, Axioms and Demonstrations"; and we have traced the gradual recognition by Kant of the synthetic and intuitive nature of all three of these 'moments' of Mathematics. It is true that Kant appears rather to neglect the Arithmetical part of Mathematics, preferring to discuss the nature of

[1] A clear apprehension of this fact would go far towards removing the objection commonly felt by mathematical purists to the simple proof of the fifth Proposition which is obtained by inverting the triangle BAC and superposing it upon itself without any further construction.

geometrical procedure; yet, when need be, he is able to draw a good analogy between the science of Space and the science of symbols. "By means of a symbolical construction of quantity," he says, "Algebra arrives at results, which discursive cognition cannot hope to reach by the aid of mere conceptions, and in this way it resembles Geometry with its ostensive and geometrical construction (of the objects themselves)." And if there be any inequalities in Kant's analysis of Algebra and Geometry, it is perfectly clear that to the author himself they seemed unimportant. He speaks of his estimate of mathematical judgments as if he knew it to be true of Mathematics throughout and honestly proved in the case of Definition, Axiom and Demonstrated Proposition, in Geometry, in Arithmetic and Algebra alike. The various distinct steps of this proof we have already mentioned in detail, the conclusion Kant draws is summed up in the words "Mathematical judgments are one and all synthetic"; we have decided that not a single type of mathematical judgments was left out of Kant's consideration, and we only wish that, when critics examine the fitness of the premises to produce Kant's conclusion, they would abandon the old fallacy that the view taken of Mathematics in the *Critique* is carelessly partial or incomplete.

VI.—CRITICAL NOTICES.

System der Werttheorie. Von Dr. Christian v. Ehrenfels, Professor der Philosophie an der deutschen Universität in Prag. Band. i. *Allgemeine Werttheorie, Psychologie des Begehrens.* Band. ii. *Grundzüge einer Ethik.* London: Williams & Norgate, 1897-8. Pp. xxiii., 277; viii., 270.

Some account has already been given in Mind[1] of the attempts recently made in Austria to work out a theory of value in relation to the problems of Ethics; and in particular the systematic treatise of Meinong has been discussed in connexion with the earlier papers of Ehrenfels. The present treatise by Ehrenfels is on a more ambitious scale than Meinong's work, and must no doubt be regarded as the most comprehensive treatment of the subject that has yet appeared. The first volume contains a complete discussion of the general theory of value; the second is an attempt to construct a theory of Ethics from the point of view of the theory of value set forth in the first volume; and it appears to be the author's intention to add a third volume, in which some of the more practical problems of Ethics are to be dealt with from the same point of view, and in which, more particularly, the bearings of Ethics on Economics are to be brought out.

The general theory of value, with which the first volume is occupied, falls into three parts: 1. The general conception of value and its derivative conceptions; 2. Laws of the transformations of value; 3. Analysis of desire. The second volume consists of seven chapters: 1. Ethics as the psychology of actually existent moral valuations (*Psychologie der sittlichen Wertthatsachen*); 2. Analysis of ethical facts (*Ethische Realanalyse*); 3. Ethical development; 4. Moral maxims, positive morality (*Sitte*) and law; 5. Individual Ethics and conscience: the ethico-metaphysical problem; 6. Popular ethical conceptions: the problems of absolute value and of indeterminism; 7. Summary and sketch of further problems.

In the discussion of the general conception of value, the most fundamental point in the doctrine of Ehrenfels seems to lie in the fact that he connects value rather with desire than with feeling.[2] In this way he escapes to a large extent from the common hedonistic interpretation of value. He rejects the view that desire is directed towards pleasure as an end (§9), and also the view that it

[1] New Series, vol. iv., No. 16. [2] *Cf.* Mind, *l.c.*, p. 427 *sqq.*

is determined by a present feeling of pleasure or pain (§10), and holds instead (§ 11) that the active[1] states of desire and will arise when the condition that they tend to bring about stands higher in the scale of feeling than the condition that would be brought into being without their action. This mode of statement seems considerably better than that usually adopted by Hedonists, in that (1) it does not represent feeling as the actual object of desire, and so avoids what is known as psychological hedonism, and (2) by its reference to a 'scale of feeling' it avoids that conception of feeling as an object possessing extensive magnitude, which has been so misleading in the English Utilitarian school. Indeed, the statement of Ehrenfels might be accepted as entirely satisfactory if the existence of a scale of feeling could be regarded as an ultimate fact. Its defect seems to lie in the ignoring of what I have elsewhere ventured to describe as universes of desire—the fact, that is to say, that our desires imply points of view. If this had been adequately perceived by Ehrenfels, I cannot but think that he would have seen that the consideration of the point of view from which things are valued is the most fundamental question in the whole theory of value.[2] This he seems on the whole to ignore.

In setting forth his conception of value, Ehrenfels is led to discuss various conflicting theories. He criticises Brentano's theory of Feeling and Desire as being special cases of the more general states of Love and Hate, and Schopenhauer's view of Feeling as an affective condition of Will. He also discusses the various hedonistic theories of desire, and brings his view into relation to the definition of value given by Meinong. But perhaps more interesting than any of these is his discussion of Brentano's doctrine of absolute value (pp. 43-51). Brentano holds that there is an absolute distinction between good and evil, as there is between truth and falsehood; and that the former has the same sort of independence of our subjective valuations as the latter has of our subjective opinions. Against this, Ehrenfels contends that value is entirely dependent on desire and is consequently purely subjective. It would obviously be impossible in such a review as this to give any adequate discussion of the great issues here involved; but I may express my conviction that Ehrenfels is at this point led into a serious error by the absence of some such recognition of universes of desire as I have already referred to. Doubtless value involves desire, as truth involves opinion; but Ehrenfels seems to fail to perceive that in both cases systematic methods of determination are involved which are not merely subjective.[3] The ethical significance of this point of view of Ehrenfels comes out more definitely in the second volume (chap. vi.).

The second part of the first volume, in which transformations of value are discussed, contains perhaps the most solid part of

[1] See the account of the third part below.

[2] *Cf.* MIND, *l.c.*, p. 445. [3] *Ibid.*, p. 431.

the work. This is a subject that can be satisfactorily dealt with from that purely psychological standpoint which is adopted by Ehrenfels, and his treatment of it is full of interest. His discussion of the struggle for existence among valuations is particularly good; and some of his remarks on the survival of forms that are not directly useful may even be of importance to the biologist. (See especially pp. 158-165). He holds that organs that have no direct use to an organism *as organs* may be valuable as modes of spending a superabundant vitality. He explains horns and other excrescences in this way; and he believes that even some organs that are now of the greatest use, such as the eye, may originally have grown up and survived in a similar way. So also he thinks it is with many modes of human thought and feeling.

In the third part Ehrenfels develops his theory of desire. Here he maintains the thesis that the more pleasant presentations tend to persist in consciousness. In this connexion it is interesting to find him contending (in answer to an obvious objection), that, in people of a melancholic temperament, disagreeable presentations are often the pleasantest. This is one of the points at which a more definite theory of universes of desire might have been of service; and without some such theory it is difficult to prevent the doctrine from wearing an air of paradox. Perhaps his discussion of the distinction between wishing, striving and willing (p. 220 *sqq.*) might also have been simplified by such a theory. It should be noted that Ehrenfels's theory of the will is one of pure determinism, and that he does not recognise activity as a special and independent function of consciousness. "There is no special fundamental element in consciousness," he says (pp. 248-49), "which can be described by the term 'desire' (wishing, striving, willing). What we call desire is nothing but the presentation of an object as coming into or going out of the chain of causal connexions that is woven round the centre of the present concrete presentation of self, and thus serving as a basis for the promotion of a relatively happy state." This position is defended by Ehrenfels at some length. But here again it would hardly be profitable to attempt any discussion.

In the second volume Ehrenfels proceeds to deal more definitely with Ethics "as a branch of the general theory of value". He notes in the first chapter that there are two antagonistic views of the nature of ethical science. According to one of these, Ethics is not to be regarded as a purely theoretical science, but rather as a practical discipline, grouped along with Logic, Aesthetics, Economics, Hygiene, and the various branches of Technology, but supposed (at least by Kant and his followers) to differ from these in laying down an absolute categorical imperative. According to the other view (represented by such writers as Simmel), doubt is thrown on the possibility of establishing a normative science of Ethics, and its province is restricted to the historical investigation of moral facts. The former of these views (at least

in the extreme form represented by Kant), seems to Ehrenfels to imply the recognition of absolute values, which he has already rejected. But on the other hand he thinks it premature to adopt the sceptical attitude towards Ethics which is implied in reducing it to a mere study of actually existing institutions and modes of action. He considers that we may avoid both extremes (the antagonism between which I cannot but think that Ehrenfels exaggerates) by regarding Ethics as essentially a branch of the theory of value. Of course this does not prevent the possibility of its being developed in the end into a normative science; but, if so, its norms will probably be more modest and qualified than those conceived by Kant. And, in the first instance at any rate, it seems best to define Ethics simply as the psychology of the facts of moral valuation.

On the basis of this definition Ehrenfels proceeds in the following chapter to attempt an analysis of the fundamental facts of moral valuation. The main points that are emphasised here appear to be the following. The moral judgment tends to be passed in the end on 'dispositions' rather than on actions; and those dispositions tend to have a positive value attached to them which promote the welfare of mankind in general, while those that hinder the general welfare have a negative value. The love of humanity in its various forms takes the first place as a disposition that is positively valued; but to this must be added Justice, Constancy, Honour, Sense of Duty, Truthfulness, Self-respect, Modesty, Chastity, Temperance, Diligence, Love of Work, and the like. All these are valued as instruments of social welfare. On the other hand Indifference is the chief root of evil, especially when it takes the form of Egoism or Ipsissimism (a perhaps not very happy term for exclusive devotion to some limited circle, such as the family, the nation, and the like). As regards the meaning of general welfare, Ehrenfels points out that there are various ways in which this may be understood. It may be understood purely with reference to feeling, as by the Utilitarians, or more definitely with reference to desire, or again more objectively as health; and account ought to be taken of all these.

The third chapter is concerned with the growth of the moral judgment. In dealing with this, Ehrenfels applies the conception of 'marginal utility,' which has been so fruitful in Economics. Moral valuations tend to be guided by the marginal good (*Grenz frommen*) of the dispositions with which they are concerned.[1] Another point that is worth noting is the emphasis that Ehrenfels lays on the Love of Development (*Liebe zur Entwicklung*) as a moral disposition that it is specially important to cultivate, and that comes to be more and more valued (p. 104).

The fourth chapter may be said to be concerned with moral institutions as embodying and enforcing moral valuations. The chief forms of these are moral maxims (commandments, and the

[1] *Cf.* MIND, *l.c.*, pp. 426-27.

like), Custom (*Sitte*) and Law (*Recht*). The relations between these are dealt with at considerable length, and in a very instructive way.

The fifth chapter deals with the more purely individual aspects of the moral consciousness, the place of conscience and kindred topics. In this connexion some reference is made to the place of the Beautiful and of Fine Art, as having significance for the inner life of the individual; and it is contended (p. 172 *sqq.*) that what Ehrenfels quaintly describes as a certain 'minimum of metaphysical conviction' is necessary for the full realisation of the moral life of the individual. From this point of view religious convictions may be valuable as working hypotheses, even if they are not wholly in accordance with truth; and to expel them for a 'metaphysical nihilism' would be to 'empty out the child with the bath' (p. 184). Even in the interests of truth itself such a procedure might prove suicidal. If the Ptolemaic Astronomy had simply been rejected as not being completly true, it is probable that men would never have reached a true theory of the heavens at all. Truth can only be reached through the gradual polishing of our hypotheses. All this is no doubt instructive; but would it not be well to urge, in connexion with it, that our provisional hypotheses, metaphysical or other, should at least be as true as we can make them? Should it not be borne in mind also that, besides acceptance and rejection, there is such a thing as suspense of judgment?

In the sixth chapter Ehrenfels is brought back to the idea of absolute value as contained in the popular moral consciousness. The tendency of the popular consciousness to attribute absolute value to moral distinctions is connected by Ehrenfels with the ideas of responsibility and freedom. Kant has best brought out the Logic of the position. The 'ought' implies 'can'; and the idea of absolute freedom leads inevitably to the idea of absolute law and through that of absolute value. But if we acknowledge the relativity of the 'ought,' we may avoid these consequences, and the conception of absolute value becomes unnecessary.

The seventh chapter contains some concluding remarks, largely bearing on the practical value of ethical speculation. The science of Ethics, Ehrenfels contends, is partly theoretical and partly practical. The theoretical part may be divided into the general and the special. His own work, so far, is concerned with general theoretical Ethics. More special treatment of Ethics might be carried on in a descriptive and genetic manner. To this should be added the more directly practical part of Ethics. "Our rejection," he says (p. 260), "of the hypothesis of absolute value precludes the view of Practical Ethics as an absolute normative discipline with imperatives of a strictly universal binding force. Still, the imperatives of practical Ethics distinguish themselves from those of all other practical disciplines in this, that they possess an almost universal applicability in fact. The applicability of the

imperatives of Pædagogy, of Therapeutics, of Bridge-building, and the like, depends on the presence of certain desires, and is quite absent in the case of those who do not wish to teach, to heal, or to build bridges. . . . Now the applicability of the imperatives of practical Ethics depends in like manner on the presupposition of certain actual desires . . . ; but these desires differ from those implied in other practical disciplines in this respect, that they are in some degree present in every normally constituted and fully developed human being, though not always with the same completeness and force, and moreover that they are present not only as bearing on the individual's own conduct but also on that of all his fellow-men. In this last point the other practical disciplines present no real analogy, for no impartial spectator demands that another shall be a teacher, a doctor, or a bridge-builder; but each one demands that every other shall fulfil the requirements of Ethics." In order, however, to see what the requirements of Ethics are, it is necessary to take account of all the conditions of human conduct, and no one investigator can have a complete survey of these. Hence the statesman, the poet, and others will often be able to contribute as much to the actual determination of the best modes of conduct as the theoretical student of Ethics, whose contributions to practical morality must in all cases be of a very modest character. In general the important point for practical purposes is to understand the process of development as it is actually going on, and to cultivate that 'love of development' to which reference has already been made as one of the most valuable moral dispositions (pp. 254-55). All that Ehrenfels says on this point seems admirable; though it might perhaps have been made somewhat clearer if he had distinguished between the purely *normative* aspect of Ethics (as defining a standard) and its more strictly *practical* aspect (as seeking to guide conduct).

It must be apparent, even from this brief sketch, that the work of Ehrenfels is one of great interest and importance. And, indeed, the reader would probably find it much more interesting than such a sketch as this would suggest; for the power of Ehrenfels, as of some other Austrian writers, seems to appear most conspicuously in the elaboration of details — an elaboration that interferes perhaps at times with the clear presentment of fundamental ideas, but that is seldom without a real interest and significance. Apart from such interest in detail, however, the work of Ehrenfels has a peculiar importance in being probably the most systematic attempt that has yet been made to deal with Ethics as a branch of the theory of value. Such an attempt seems to the present reviewer to be full of significance. I am not, indeed, prepared to say that the idea of value is essentially the most fundamental conception in Ethics (as it may be in Economics). It is probable that the idea of an end or good will be the most persistent in ethical speculation, as it was the earliest. But at present there are some obvious

advantages (besides the freshness of relative novelty) in approaching Ethics from the point of view of value.[1] The idea of an ultimate end or good is apt to lead too suddenly into the quagmires of metaphysic, or else to be interpreted in some quite inadequate biological way. The idea of an absolute law is still more misleading; and Hedonism, if it is not interpreted as a theory of value (as to all intents it is by such writers as Sidgwick and Gizycki), seems to be nothing but bad psychology. The theory of value keeps prominent the important idea that the good in Ethics is a good for us (something, in Aristotle's phrase, that is πρακτὸν καὶ κτητὸν ἀνθρώπῳ), while at the same time it leads us to think of an objective end. Yet the attempt to construct Ethics on the basis of a theory of value is not free from danger; and it does not appear to me that Ehrenfels has been quite successful in avoiding its perils.

The first danger, I think, is that of forgetting that value implies a point of view. Ehrenfels seems too ready to pass from the idea of value to that of simple desire. It may be true that all desire (and indeed even all feeling) implies the presence of an inchoate idea of value; but definitely to value is much more than to feel or desire.[2] It implies some estimation of the object felt or desired in relation to some system to which it belongs. It implies, in short, some idea of a good. Hence I am doubtful whether, after all, the substitution of the idea of value for that of the good does not simplify the problem only by obscuring its ultimate nature.

Another closely related danger is that of interpreting value in a purely subjective way. What has value must be valued or be capable of being valued from some point of view; but does it follow that value is constituted simply by valuing?[3] This of course is essentially the problem that is discussed by Ehrenfels when he asks whether there is any such thing as absolute value. But I think the problem is to some extent misconceived by him. "By absolute values," he says (vol. ii., p. 191), "we are to understand such as in their character as values are independent of every actual change of desire." Now, if this is what we are to understand by an absolute value, Ehrenfels may be right in denying that there is any such thing,[4] just as Aristotle may have been right in throwing doubt on Plato's absolute good. In like manner one might throw doubt on the possibility of absolute truth (something whose truth is independent of the point of view from which it is regarded), or absolute beauty, or any other kind of absolute. But it is strange how utterly one half of the thinking world does not know how the other half philosophises. One would have thought that, since the time of Kant, absolutes of this sort had been a little out of fashion, and that their place had been taken by the relative absolute. To deny that there is any absolute

[1] *Cf.* MIND, *l.c.*, p. 447.
[2] *Ibid.*, p. 428.
[3] *Ibid.*, p. 441-42.
[4] *Ibid.*, p. 442.

value, in the sense defined by Ehrenfels, is not to deny that value is objective, and has an absolute validity from any given point of view. And if once we recognise this, then again the great question comes to be—What is our point of view? This is the question, as it seems to me, that Ehrenfels has not sufficiently faced. If he had faced it, his treatment no doubt would have become metaphysical rather than psychological, and would have opened up fundamental problems that he has sought on the whole to avoid. But I venture to doubt whether, without facing such problems, there can either be an adequate theory of value or an adequate doctrine of Ethics.

Still, we have every reason to be thankful for what Ehrenfels has given us; and we shall have still more reason for gratitude if he goes on, as he seems to promise, to apply his theory of value to some practical problems of life, and especially to those of economics. For such a task his gifts and training would seem to fit him in a pre-eminent degree; and I for one shall look forward to this part of his work with the most eager anticipation.

J. S. MACKENZIE.

Aperçus de Taxinomie Générale. Par J. P. DURAND (DE GROS). Paris: Félix Alcan, Editeur, 1899. Pp. 265.

To judge from the list of M. Durand's works, the earliest of which bears date 1866, he must be a veteran free lance in the borderland between philosophy and biology. He describes himself in the book before us as *un vieux paysan aveyronnais courbé tout le jour sur sa charrue*; no doubt a pleasant exaggeration, which disposes us however to listen with attention to his views on the method of natural history.

The author has been strongly impressed by the neglect both of naturalists and of logicians to study the general types and laws of the methods of classification which Science attempts to apply. The "true," "rational" or "natural" system is the object, he urges, of endeavours which are riddled with incoherence because no clear understanding prevails as to its nature. M. Durand considers himself no more than a pioneer towards the establishment of a general science of classification.

The main argument is as follows:—

The elementary form of all classification is the series, which depends on the increase or decrease of some "variable". The nature of this variable determines the nature of the series, and in the abstract all series are reducible to certain types, which constitute the Taxinomic[1] Categories, and on each of which is founded a true Taxinomic Order. Of these Taxinomic Orders the author distinguishes four, his enumeration depending on an empirical review of the field.

[1] I observe that English writers prefer the spelling Taxonomy and Taxonomic. I follow M. Durand.

The first is the Order of Generality[1] or of Resemblance, otherwise called the metaphysical order, because its higher terms, if not all its terms, are theoretical or fictitious objects, and not actual things. It depends on the varying Resemblance between objects, and this Resemblance is in the ratio of the proportion of common characters which unite them. This Taxinomic Order is familiar to us in the relation between genera and species. M. Durand expounds it with extreme clearness, providing diagrams which represent the superposition of characters in each actual object as well as the coalescence of the common characters into ideal groupings or classes. The actual objects, he is careful to remind us, appear in the base line only, and not at all in the vertical succession. Strictly speaking, indeed, they are driven underground, and we work from the species upwards. It is to be noted—and the fact prepares us for reservations to be made below—that the author embodies in his account of this order the "inverse proportionality of extension and comprehension" in its sharpest form.

The second Taxinomic Order is the Order of Composition or Collectivity, which is founded on the relation of whole to part and part to whole. Its objects, higher and lower alike, are actual concrete objects, herein differing from those of the previous order. M. Durand holds that equivocation arises in Science and Philosophy by confusing three usages of the words general or universal; one belonging to the previous order, in which they represent the relation of a genus-idea to its species; and two belonging to the present order, in which they represent (*a*) the relation of the actual compound whole to its actual component parts (the "real comprehension" of a collective name, as the body is the universal of its members), and (*b*) the relation of "the part" in a homogeneous actual compound whole to the whole, as the cell is the general element of the body (the "real extension" of an element).

The juxtaposition of the relation of genera and species and the relation of whole and part is the suggestive side of the author's very sharp distinction between them—a distinction, it will be found, which he is not always able to maintain. From Lotze downwards a good deal has been done of late years to undermine the rule of inverse proportionality between extension and comprehension, and the modification of this rule affects the alleged unreality of the higher terms in generic generality, so as to open a bridge from connexion by resemblance, to connexion by determination in an actual whole,—from imitation to constructive co-operation. In the generic sense, M. Durand observes, "we may say of Humanity that it is present and entire in each of us; in the collective sense it is a totality"; and he finds analogous meanings in Animality. It is interesting to compare this with

[1] The term Generality will recur in a different sense in the account of another Order, and it would have been better to call this the Order of Generic Generality.

Lotze's remark[1] on "our habit of representing to ourselves the countless multitudes of mankind not merely as instances of their genus, but as parts of Humanity; in the case of animals the peculiar ethical reasons which bring this about are wanting, and we are not in the habit of speaking in the same sense of 'Animality'". The most faithful votary of formal Logic must be startled, I think, when he is told that Humanity, even as a nature or content, is "present and entire in each of us". The question arises whether we can have even our *generic* nature except as *parts* of *a whole.* The question of the reality and individuality of universals is underneath the entire discussion, and M. Durand has some shrewd remarks affecting it. Within the Order of Composition itself the Order of Resemblance appears in various degrees, and as it fades the co-operation of parts strengthens. M. Durand notes this point, but does not observe how the substitution of Identity for Resemblance would bear upon it. However, there is no doubt that a confusion is possible between the *prima facie* senses of generality as above distinguished, and M. Durand thinks that he has convicted both Littré and Bichat of errors in this sense.

The third Order is the Order of Hierarchy—the relation of rank between heads or centres of units, which are themselves related in order of Composition, as, in the Army, the Generalissimo to the Generals of Divisions. Passing from this, which seems to me unimportant, we come to the fourth type of series known as the Order of Genealogy and of Evolution, which depends on relations of kinship (*Parenté*), under the three species of Ascent, Descent and Collaterality. Like the Order of Composition and the Order of Hierarchy, the Order of Genealogy deals throughout and exclusively with the actual objects to be classified "which occupy and constitute without exception the *cadres* of the table of classification". In this point, as we have seen, there is *prima facie* an absolute difference between these three orders and the Order of Generic Generality. The chapter on the Genealogical Order ends by stating the question whether a first ancestor in the Genealogical Order can also be the genus of his descendants considered as species in the Generic Order. The provisional answer is that this may appear to be the case, but only through an equivocation by which the nature or content of the common ancestor is confused with his actual individuality. Passing over discussions of some interest we will now pursue this question as it is further treated in the chapter on Natural Classification.

The problem of Natural Classification on the Evolutionist hypothesis is here treated as the problem of combining a "Generic" with a "Genealogical" Classification. If the genealogical facts could be represented by a progressive linear series of the type of the *chaîne des êtres*, a generic classification could be applied to this by simply dividing the series into segments of the greatest

[1] *Metaphysic*, p. 179, Engl. transl.

resemblance. Some such recurrence to an obsolete arrangement is imputed to Hæckel by the author in a passage of detailed criticism.[1]

But the series is not linear. The organic form, which, in degree of evolution or organisation, might be the common ancestor of all living beings, coexists on the same genealogical level with the "higher" forms of life, as their remote cousin. If the classification is to be genealogical, such a form must appear in it at two extremes, as common ancestor, and as a collateral "uniplane" with existing forms.

Admitting thus, then, the facts of collateral kinship in their fullest extent, can we make a genealogical arrangement coincide with a generic classification? M. Durand does not deny the possibility *in toto*, but points out a number of difficulties.

i. The Ancestor's name, if it is to stand for a class, must imply an essential transmissible character; thus "Vegetable Monera" could not be a general name for all vegetable organisms.

ii. It is conceivable that the "essential" quality may fail—an Invertebrate species might spring from a Vertebrate one. The ancestor of the Reptiles could hardly be called by a name which would serve as a general name to include Birds. Regression, Convergence and the like, enhance this difficulty. It may be noted as to this that in any case the common ancestor in such a system must have his descendants' character read back into the meaning of his name, *i.e.*, must have a sense put upon his name which his given qualities do not bear out. A true view of connotation shows us this at once. To make the actual qualities of the animal Monera (calling it "Animal" *par excellence*) the universal of all the qualities of Animals, would be just like understanding the connotation of "Animal" to be the remainder, after all attributes in which animal species differ, such, for example, as intelligence, had been omitted.

iii. The author asks whether the generic name in a natural classification *does* always imply a single mother species; adducing such cases as the common character of the Greek dialects or the Slav languages. From the mere common character, he urges, we cannot tell whether we may infer an actual "absolute" Greek, or an actual individual "Slav" language, as respective common ancestor.

iv. By a sort of converse supposition to i., if the meaning of the actual common ancestor's name is confined to his given qualities, and nothing read back into them, then he will be very close to his

[1] Hæckel, I gather from M. Durand, shows a genealogical tree with its trunk divided into four vertical segments, each named after a general division of the animal world. He also gives a list of kinds in linear order. A list must be linear, and should be interpreted by the genealogical tree (see *e.g.* Lankester, art. Zoology in *Enc. Brit.*); but it is a question if the tree trunk can represent actual animal species (see below).

mother species and to his collaterals, and the great kingdoms of the living world will fail to be discriminated. *E.g.* the Primordial Monera, the Vegetable Monera and the Animal Monera, would appear as three but slightly differentiated species. If then their natures are construed as class ideas including their descendants, the whole animal and vegetable world would be brought within a single genus.

It appears to me that votaries of Natural Classification never make any real attempt, such as the author suggests, to combine genealogical and generic orders by erecting the names of common ancestors into names of kinds. And it seems plain that such an attempt would meet with the difficulty indicated above, and emphasised by Dr. Edward Caird in dealing with the evolution of religion, *viz.*, that by cutting down the essence of great class ideas to the actual given qualities of the least evolved species within them, all real grasp of their nature is sacrificed. On the other hand, to read into the names of undeveloped species the universal scheme of qualities which we have gathered from their higher descendants, seems to involve falsification of fact. It may be said, therefore, that to combine genealogy and generality, according to M. Durand's idea of the combination, is impossible. The trunk of the evolutionary tree must stand, as Huxley says, for a general plan of structure (*Enc. Brit.*, art. Evolution). But if so, in what part of such a diagram are the common ancestors represented? We have just seen the difficulty of supposing the trunk to represent *both* actual species *and* a common plan.

I do not think it results from what has been said that a generic classification, following the affinity of descent, is an illusion. It only results that the essence of such a classification cannot be expressed through proper or specific names strictly designative of common ancestors. It is plainly conceivable that the principle of heredity may be the true controlling universal, although in a given common ancestor its possibilities are not made explicit. No one who is familiar with a good natural classification will easily withdraw himself from the conviction that he is dealing in it with the differences of a true governing universal; and his belief will be confirmed rather than weakened by the fact which M. Durand emphasises, that the tendency of such classification is to go behind obvious similarities in looking for presumptions of affinity; to replace, as I should say, the superficial perception of resemblance by the analysis of identity in difference, pointing ultimately to the unity and differentiation of parts in a whole. In any case M. Durand's work is full of suggestions and remarkably lucid. Perhaps it is somewhat tinged with the idea that the laws of classification can be studied in advance, apart from the special investigation of the matter to be classified. This remark applies especially to the final chapter on the classification of the sciences.

BERNARD BOSANQUET.

Instinct and Reason. An essay concerning the relation of Instinct to Reason, with some special study of the nature of Religion. By HENRY RUTGERS MARSHALL, M.A. Macmillan Co., 1898. 8vo. Pp. xiii., 574. Price 12s. 6d. net.

THAT 'the half is greater than the whole' is in brief my impression of Mr. Marshall's book. Its core of psychological thinking I take to be sound enough. That core, however, is enveloped and overlaid by metaphysical and anthropological doctrine of so questionable a character that, in my humble opinion, this careful and laborious piece of writing must be judged to have virtually failed in its general aim and purpose. It may be, of course, that the 'whole,' the general purpose, ought to be condoned as having been the efficient cause of the 'half,' as having led the author to turn his attention to psychology. Surely, however, as readers of the last ten volumes of MIND will already be aware, his analytic faculty is by this time mature enough to exist by and for itself. If I might venture to advise him, therefore, I should urge him either to confine himself to a field that is certain to yield him fruit, or, if the fruit he covet be some far-reaching application of his psychological lore, to undertake a more critical survey of his ultimate postulates, and to carry his study of the history of mind considerably further in the direction of the concrete.

From the title of the book it might be presumed that its subject was concerned with the respective natures and mutual relations of Instinct and Reason. The preface, however, informs us that the fundamental purpose of the essay is to "present" a certain conception of Religion, the distinctively psychological questions raised in the course of the argument being dealt with in strict subordination to this end, and, in so far as they involve technical treatment, relegated to certain special chapters. In some of these the writer fully establishes his claim to rank as an "analytic psychologist". In other no less technical chapters, however, he assumes the more doubtful *rôle* of "biological psychologist". Such an one, apparently, is he who stands back from the results of his introspection and tries to take, as Mr. Spencer would phrase it, a "Biological View" of them. Now in so doing he is aiming at far more than what the author would term the "objectivication" (*sic*) of his own personal experience by comparing it with the indirectly apprehended experiences of his fellow-creatures. His dream, in fact, is no less than to describe all the activities of human life, physical and mental, in terms of what he takes to be their biological unit, namely, the reaction of a living cell to the stimulus received from its environment. Plainly such a task, were it possible, would involve 'objectification' with a vengeance. Possible or not, however, it is precisely this task that Mr. Marshall attempts. The inevitable consequences he boldly faces. He asserts the "parallelism" of mental and neural action (such parallelism, however, being held not incompatible with a certain

"dependence" of the former on the latter); and approaches the highest manifestations of human spontaneity from the standpoint of the "logical determinist". He brings human society into line with the primordial cell by maintaining the doctrine of the "social organism". He proclaims "the relativity of ethical codes"—with needless asseveration, considering his other principles. For the rest, he pins his faith on the evolutionary, or "genetic," method, which he opposes to that of "rationalistic philosophy". Throughout, however, there appears to be lacking a sense of the assumptive character, of the purely methodological significance, of these fundamental postulates. In an isolated passage, indeed, he says: "I have no quarrel with metaphysical doctrines of the Absolute, which may be true without at all interfering with the conclusions which we as psychologists here reach". He is truer to himself, however, when in his opening chapter he rejoices over "the curbing of rationalistic confidence" that the present century has witnessed, and associates the charge of committing "metaphysical excesses" with the name of Kant. The fact is that he seems to have no notion how 'excessively metaphysical' his own system is, though after the fashion not of Kant but of Mr. Spencer. Just as Mr. Spencer, after the parade of an absolute Unknowable, proceeds to invest with seeming absoluteness a series of materialistic hypotheses affiliated by means of a loose deductive process that for the most part begs its preliminary inductions and shirks its verifications, so Mr. Marshall, despite his professions of distant regard for the Absolute, succumbs to the fascinations of final synthesis, and adopts an order of would-be explanation that effectually sacrifices the authority of his psychological facts to the pretensions of his biological fancies. Surely his duty 'as a psychologist' was to keep biology and "rationalistic philosophy," if not at arm's length, at any rate at one and the same convenient distance. Should these be found to supply him with incompatible assumptions, his metaphysical insight, nay, his knowledge of the logic of his special subject, ought to inform him that this was no bar to the discovery of the purely relative truths which every science, and notably a science of 'bridge-work' like psychology, sets forth to seek.

I would that I had space wherein I might expose the one-sided nature of the conclusions which biological proclivities and the striving after impossible consistency and finality have forced upon the writer, and yet do justice to the cleverness, the brightness, and the originality of his argument. As it is, I must trust readers of MIND who are acquainted with Mr. Marshall's previous record to accept my summary exposition and criticism of his views with the necessary reservations.

His psychology begins and ends with the cell. Organisms are either cells or systems of cells. The typical modes in which an organism responds to the normal stimuli of the environment are its "instincts". In the case of a system of cells (whether polype

or social organism) its instincts are the typical modes in which it reacts as a system. To these "instinct actions" the reactions of the component cells, or "elements," are strictly subordinated, given normal stimuli. If, however, the stimuli be "hypernormal" (*sic*), the component elements will abandon typical reaction for a purely self-regarding line of behaviour. The stomach, for instance, if morbidly stimulated, will defend itself with excessive vigour to the inconvenience of the man. Such individualistic action on the part of an element is, according to Mr. Marshall's wide rendering of the term, "reasoned". "Reasoned action," in fact, is "instinct action" of a special type, namely, the self-preserving action of the part as against the good of the whole. Instinct and Reason thus exclude one another just in so far as the interest of the system conflicts with that of the element when under abnormal conditions its action becomes "variant," that is to say, selfish.

Such being the groundwork of Mr. Marshall's scheme, where, then, do Man and his Religion find a place therein? The man is the element, his social group the system. He has individualistic instincts (the chapter on these is one of the best in the book) and social instincts (whereof choice examples borrowed from the author's list are those that make for Imperialism and Economic Protection), together with sexual instincts that, facing as they do in opposite directions, namely, towards the gratification of passion and towards the cherishing of wife and child, occupy a sort of middle station. Given normal circumstances, then, his various "instinct actions" will, one and all, subserve the interest of the system, the social group. But man's circumstances never are normal. For one thing, the circumstances contemplated by Nature in organising and perpetuating man's racial instincts are a kind of abstract of those encountered by countless past generations, an abstract constantly revised it may be, but one for all that never fully adequate to the circumstances of the moment. (Mr. Marshall is disappointingly reticent on the subject of Heredity, but this must be what he means by making the organisation and force of instincts so much a matter of their age.) Moreover, the social group is a low and incoherent class of organism at best, and its "elements" are easily tempted by stress of events into anarchy and "variation". Thus, despite Conscience, a sort of ethical indigestion, Reason has a merry and a busy time of it, its function being simply and solely to "emphasise" all such "variant" influences. On the other hand, however (and here we are strongly reminded of Mr. Kidd), a diverse tendency may be observed at work with intent to neutralise the sway of Reason by emphasising the social instincts and inciting them to assert their natural and normal superiority. This tendency is Religion, itself an instinct, according to Mr. Marshall's terminology, but one of a peculiar regulative type, inasmuch as it is not, like one of the specific social instincts, an instinct to be good—that is, to subserve the interest of the group—but an instinct *to try* to be good. And at this point,

before I dwell further on this conception of Religion, I would fain wind up my polemic against Mr. Marshall's general methodological position. So long as we are dealing with the more definite and invariable instincts of man, notably with his individualistic and sexual instincts, the suggestive analogy of stimulus and cell-reaction serves well enough as a logical base of operations. As we move forward, however, to ever more complex and inconstant social tendencies, the light shed by the analogy grows steadily fainter. Finally, when we arrive at forces like Reason and Religion that stand apart from, and above, the specific instincts, and supply pure "emphasis" to tendencies already of their own right active, "Parallelism" seems played out, and we yearn for a new and opposite analogy—Mr. William James' notion of consciousness "loading the dice," or something even more explicitly "rationalistic" in phrase and import. No wonder then that the writer's consistency breaks down; that we are startled by homely turns of expression that will not conform to the formal demands of the argument (for example, when "common sense" is said to refuse to listen to "reason" when it tries to part young lovers); that we are surprised though delighted to find 500 pages of the most ingenious 'reasoning'—for surely it is that, or would be that—lead straight to the conclusion (printed in capitals) "Be religious". The fact is that here at the entrance of the stronghold of Mind there be locks a many needing as many keys to fit them. To dream of a skeleton-key that shall open them all is pardonable enough. To forge and apply one with reckless intent in the present state of our knowledge is philosophic house-breaking.

There remains a word to be said concerning Mr. Marshall's conception of Religion on its anthropological side. That he is no expert in matters anthropological is plain from the preface itself, where he terms the study of the genesis of religious customs and beliefs "a field which has perhaps been already sufficiently explored". It is a pity, then, that (despite a professed ignorance of Origins) he should dispute with "Tyler" (*sic*, as also in the Appendix) as to the "origin" of fasting, theorise about the way in which "the act of circumcision may have been at first performed," and so on. As to his main doctrine, that Religion is a sort of withdrawal of self from individualistic influences, so that the "voice" of conscience may make itself heard, he ought either to have given at least some passing consideration to Mr. Tylor's weightily delivered judgment, that "the connexion between Morality and Religion is secondary and late"; or else, if he prefer to set up Validity against Origin, and argue from what Religion has become, let him abstain from fancy sketches of primitive religion with its "established phallic church" and the rest. There may be something, of course (though personally I doubt it), in the view that the hallucinations of the savage medicine-man are prone to take an ethical turn. Such a view, combining as it does the two more or less disparate halves of Mr. Lang's latest anthro-

pological work,[1] is at least in the forefront, if not a bit ahead, of the time. To make it at all plausible, however, Mr. Marshall must study far more "folk-lore" than that which he discovers in the Bible. He is a psychologist of considerable distinction; but *ne sutor* . . . R. R. MARETT.

Psychology and Life. By HUGO MÜNSTERBERG. Boston and New York: Houghton, Mifflin & Co. Pp. xiv., 286.

THE essays reprinted in this volume have for the most appeared in the *Atlantic Monthly*, and this perhaps explains, if it does not excuse, the combination of a popular tone with professorial dogmatism which its discussions display. The style forms another stumbling-block. It was hardly judicious for Prof. Münsterberg to 'commence author' in English with a work whose semi-popular character renders any deficiency in his power over that medium of expression much more glaring, and he should at least have chosen his literary advisers among his colleagues in the English department of Harvard University, instead of leaving to his laboratory assistants the "helpful retouching of his language". As it stands, the book reads like a bad translation from the German, of which tongue the English reader desirous of understanding it, will require a competent knowledge, and it is to be feared that in spite of Prof. Münsterberg's assurance (p. x.) that "I do not want to entertain by these papers," his "unamusing book" will provide not a little involuntary entertainment to the aforesaid personage.

Prof. Münsterberg's literary audacity is well matched by his scientific pugnacity. His avowed purpose is polemical; "I want to fight" he frankly declares in his preface, nor is it possible to mistake the warlike ardour which has been engendered in him by the action of the new American imperialism upon the military instincts of a German. Whether he will be able to show as much stomach for the fight after his adversaries have replied, must remain to be seen. Still, as he only desires to fight, it is possible that he may have an equal appetite for battle whatever the issue, and in that case, if his critics do their duty, it is conceivable that his ideas may be so licked into shape that his enterprise may turn out to have been at least subjectively worth adventuring. A person so valorous and aggressive must needs be pachydermatous to criticism; but it will be surprising if, after reading the replies he is sure to provoke, Prof. Münsterberg does not regret that he did not show rather more discretion in choosing his fighting-ground, before proceeding to run amuck in the philosophic world.

For certainly the metaphysical basis from which he starts in all his arguments, appears to need a good deal of explanation, if not of justification. It is best stated in the attempt at a classification of the sciences on p. 205. Psychology, we are told, is the

[1] *The Making of Religion.* Longmans, Green & Co. 1898.

science of the individual objects, physics of the over-individual objects, while the normative and historical sciences are respectively concerned with the over-individual and individual will-acts. The sciences of the first group are naturalistic, and demand mechanical causal connexions to the exclusion of all freedom; those of the second are teleological and free and exclusive of causal connexion (p. 211 *et passim*). The latter deal with the real world of the inner life which alone has value, and for which the "causal view has not the slightest meaning" (p. 266), while the former are systems of the laws into which the reality is transformed for the purpose of description, a purpose which is fully attained only when psychical events have been conceived as dependent on brain motions. The real life on the other hand is wholly will, and out of time (p. 279), deathless or 'immortal' (p. 280) and non-existent (pp. 24-25); its 'transformation' is unreal, for "whatever is thought as existing cannot have reality," but psychology is nevertheless bound to perform this operation if it is not to be ruined (p. 183).

Such is the basis on which Prof. Münsterberg supposes himself to erect "a scientific synthesis of ethical idealism, with the physiological psychology of our days," and from which he proceeds to prolix discussions of the relation of psychology to life, physiology, education, art, history and mysticism. The results are, as might be supposed, sufficiently curious, if not always entirely consistent (*cp.*, *e.g.*, pp. 14 and 270). They derive their importance from the fact that Prof. Münsterberg is the representative of the 'experimental' psychology in the leading American university, and *quidquid delirant reges, plectuntur Achivi*. Moreover it behoves us all to realise with what barbarisms the fashionable developments of a naturalistic psychology threaten philosophy. To be informed that scientific psychology *cannot* recognise a will or personality, and *must* reduce all psychic events to atomic sensations, while at the same time real life is wholly volitional and a realisation of purposes (which are nevertheless declared to be out of time), that a causal and a teleological explanation of events are incompatibles, that any attempt to avoid such conclusions is unscientific and inadmissible, all this is surely calculated to arouse the calmest. Yet Prof. Münsterberg is by no means himself one of the untutored savages, innocent of the least comprehension of philosophy, who roam over the wide stretching laboratories of the new psychology, and fancy that the solution of all philosophic questions is to be looked for from some physiological experiment. He sees that psychology cannot take the place of logic and ethics, and that in common with all scientific doctrines its methods have ultimately to be subjected to metaphysical criticism. In fact it is just because he recognises the inadequacy of mere psychology and aspires to transcend it by means of a metaphysic which draws its inspiration from Schopenhauer, and, more remotely, from Kant, that he arrives at the paradoxes and

absurdities which render his conclusions unacceptable to all parties and from every point of view. If he had attempted less, he would have confined himself to a definite plane of psychology, if he had pushed his philosophical analysis one step further, he would have seen the way out of the difficulty which forces him into a *reductio ad absurdum* both of psychology and of 'the real life'.

The root of all his errors is that he misconceives the nature of a methodological assumption. It is quite true that the point of view of psychology, as of every science, is abstract, and involves a disregard of all such aspects of the reality as are not germane to the purpose of the particular scientific contemplation. But so long as its nature is clearly apprehended, the inadequacy of any such assumption does no harm. And in no case does it justify a schism in the universe of our experience after the manner Prof. Münsterberg proposes. What he has forgotten, or has never realised, is that the assumptions of the special sciences may and must receive reinterpretation before their results can take their place in the total system of thought whereby we seek to understand our experience. And such a final system cannot possibly acquiesce in a separation of reality and existence, worth and science, will and sensation, personality and organism, purposes and causes. Indeed Prof. Münsterberg all but sees this himself. He is for ever telling us that psychology effects a 'transformation' of the actual data of mental life for the sake of its own logical purposes (*e.g.*, pp. 19, 22, 23, 29, 43, etc.). It follows that the sciences of causal connexion are ultimately called into existence by teleological demands, and that their separation from the purposes of the 'real life' cannot be maintained. We are not indeed told what are the logical purposes for the attainment of which the natural sciences have value, but it is not difficult to see that in the last resort the explanation of this point cannot avoid a reference to the practical value of the scientific 'transformation' of our experience. If so, the divorce between science and reality will disappear, the supremacy of practical life must be acknowledged, and the sciences also will find their proper place as means to the realisation of our ends. If for the sake of cultivating friendly relations with the old-established physical sciences, the psychologists at present choose to work with assumptions which are analogous to, or even coincident with, those of physics and mechanics, and if on this account they choose to abstract from the purposive character of mental life and decline to recognise the 'will' *in psychology*, they are perfectly within their rights, and their action should not give rise to misconstructions—still less to philosophic constructions like Prof. Münsterberg's. But they are equally entitled to vary their working assumptions, if they find that the prevalent methods are not able to do justice to all the facts and do not lead to valuable results. Even within the limits of the natural-science view there is a hardly-concealed antagonism between mechanical and biological methods, and good reasons

may be adduced for holding that the latter might prove far more fruitful in psychology than the former have shown themselves to be, while, on Prof. Münsterberg's own showing, the whole group of facts he calls 'mystical' is constitutionally incapable of scientific treatment by psychology as he understands it. As such absurdities cannot be tolerated, it is obvious that other assumptions must be tried, and adopted, if they work well. It is in the interest neither of the sciences, nor of philosophy, nor of practical life, that a narrow-minded and superstitious veneration should ascribe an immutable rigidity to the working methods of any science, and least of all to those of the present day. And a *credo quia absurdum* attitude, when the consequences of inadequate assumptions manifest themselves, is as bad in psychology as in theology. Even if, therefore, all Prof. Munsterberg's antitheses were as sound as they are unsound, they would constitute only a proof of the urgency of a reinterpretation of one or both of the antithetical conceptions. This is a possibility which seems never to have occurred to Prof. Münsterberg. He has, unluckily, got a notion that causal and teleological connexion are exclusive alternatives. The solution is simple; let him reconstruct his notion of a cause, and abandon his belief in its sacrosanctity and infallibility. When he has done this, the irritation which now makes him 'want to fight' will be allayed, and he will cease to provoke convulsions throughout the philosophic world.

F. C. S. Schiller.

VII.—NEW BOOKS.

Talks to Teachers on Psychology: and to Students on some of Life's Ideals. By William James. New York: Henry Holt and Company, 1899.

In these talks Mr. James has deliberately set himself to eliminate so far as possible the formal side of psychology. He is careful to guard his readers from expecting too much from his science. He does not go the length of saying that the teacher is of necessity an empiric, but he makes it very clear that the whole value of psychological knowledge to the teacher lies in the power of applying general principles to this or that child at a given moment. To be a good teacher is to be a good practical psychologist: but the converse does not hold. Under these circumstances we are not surprised to find nothing new in the psychology of the volume. Those familiar with Mr. James's writings know exactly what to expect, so far as the psychological ground-work is concerned. What gives the volume its value—in addition to the brilliant style in which the author cannot help expressing himself—is the insight it gives into the principles of applying psychology to life in general, and to teaching in particular. It is greatly to his credit that our author makes such restricted use of what he modestly calls the Lange-James theory of the relation between emotion and expression. Readers of his *Principles* cannot fail to be struck by the difference of his treatment of this subject in comparison with all the other subjects he handles. Elsewhere he is the outside critic—sympathetic and interested no doubt, but still outside—here he becomes, for the time being, a pleader. This being so, we cannot too much praise his self-restraint in limiting his use of this theory to a single chapter in a book in which it might have legitimately bulked very largely; for few theories in psychology have anything like the importance that this theory may fairly claim in education. The theory itself has been already examined in these pages, and, while we cannot accept it, we are convinced that there is no intelligent teacher who does not wish he could. Further, while in the ultimate resort the theory must be held to be false, it is supported by so many arguments that as a practical hypothesis it is not without its value in guiding teachers. Few, we think, will be found to dispute the practical conclusions arrived at in the chapter on "The Gospel of Relaxation".

The book is probably hardly dull enough to satisfy teachers on this side of the Atlantic, but they may rest assured that it is accurate so far as it goes, and that it goes a great deal farther than many much duller books.

Psychology in the Schoolroom. By T. F. G. Dexter and A. H. Garlick. London, New York and Bombay: Longmans, Green & Co., 1898. Pp. viii., 413.

There is in this book a good deal too much of the schoolroom—especially of the schoolroom during examination—and a good deal too little

psychology. As educators, the authors have something to say; as psychologists, they have simply furnished a compilation of the opinions of Bain, Spencer, Sully, etc., without regard to system or even to uniformity of terminology. One must not demand everything of a text-book; but one may demand knowledge of the great current issues, and Messrs. Dexter and Garlick appear to be wholly unfamiliar with the work of James, Stumpf and Wundt.

The chapters are entitled: Physiology and Psychology; the Three Phases of Mind; Attention; Sensation (organic senses, taste, smell); Perception (senses of sight, touch, hearing); Observation; Development and Training of the Senses; Memory; Imagination; Conception; Judgment; Reasoning; Apperception; Psychological Basis of the Kindergarten System; Feelings (egoistic, social) and Sentiments (intellectual, æsthetic, moral); Will; Habit; Character; Discipline. There are sixty-four figures in the text, most of them well-selected and useful. Every chapter ends with a summary and a list of questions, and an appendix contains specimen examination papers. Indeed, what one may call the mechanical side of the making of the book is excellent. But neither will it help the reader to become a psychologist nor does it furnish the outline of a modern system of psychology.

General Physiology: an Outline of the Science of Life. By MAX VERWORN, a. o. Professor of Physiology in the University of Jena. Translated by F. S. LEE, Adjunct Professor of Physiology in Columbia University. With 285 illustrations. London and New York: Macmillan & Co., 1899. Pp. xvi., 615. Price 16s.; $4.

Prof. Verworn's *Allgemeine Physiologie* (1894, second edition, 1897) is an excellent book in the German, and no less excellent is Prof. Lee's translation. We are glad to call the attention of psychologists to it, and heartily subscribe to the words of the translator's preface: "The work has been welcomed by European and American biologists, who have felt the need of a review and summary of the rapidly accumulating details of cell-physiology, and its ability and suggestiveness have been widely recognised. Many of the special views of the author have encountered opposition — a fact that, perhaps, is indicative of their value — yet, however much we may agree or disagree with him upon special points, we must all acknowledge his breadth, and be grateful to him for presenting such a wealth of facts, and for pointing out so clearly the possibilities of research." Prof. Verworn's well-known *Psychophysiologische Protistenstudien* (1889) is a guarantee of his interest in, and familiarity with, fundamental psychophysical problems. The present volume contains a bibliography and a good index.

The Principles of Biology. By HERBERT SPENCER. Vol. i., revised and enlarged. London: Williams & Norgate; New York: D. Appleton & Co., 1898. Pp. xii., 706. Price 18s.

We are glad to add our voice to the general chorus of congratulation which has greeted the veteran author of the *Synthetic Philosophy* on the appearance of this second edition of vol. i. of his *Principles of Biology*. Additions of prime importance have been made to the text of 1864. We find new chapters on Metabolism, on Structure, on the Dynamic Element in Life, on Cell-life and Cell-multiplication, on Genesis, Heredity and Variation, and on Recent Criticisms and Hypotheses. The chapter on the Arguments from Embryology has been for the most part rewritten.

Two new Appendices contain a summary of the evidence for the Inheritance of Functionally Wrought Modifications, and an essay upon Spontaneous Generation and the Hypothesis of Physiological Units. The most interesting of these additions, to the philosophical reader, will probably be the arguments alleged in favour of 'direct equilibration' and the discussion of the nature of life. Fuller notice is reserved until the publication of the second volume.

The Dawn of Reason: Mental Traits in the Lower Animals. By J. Weir. New York: The Macmillan Co., 1899. Pp. xiii., 234. Price $1.25.

Comparative psychologists fall into two classes: the credulous and the sceptical. Dr. Weir, who belongs to the former category, and holds that "intelligent ratiocination performs an important *rôle* in the drama" of animal life, has brought together in this little volume a mass of data, gained at first and second hand, which had for the most part already seen the light in the form of magazine articles. This fact may account for the unnecessary repetitions of anecdote that disfigure his pages. He believes in the development of mind from reflex action, and in the existence of an unconscious as well as a conscious mind. The book before us is principally concerned with the conscious mind of insects.

Dr. Weir is a good observer, but a poor interpreter. Our old friend, the æsthetic spider, revives under his hands. Adaptation of colour to environment ('tinctumutation') and the homing instinct are referred to 'auxiliary senses'. It is well that, as the Preface states, the author "does not claim infallibility": for *psychos* is not the Greek for *mind*.

Defective Eyesight: the Principles of its Relief by Glasses. By D. B. St. J. Roosa. London and New York: Macmillan & Co., 1899. Pp. 193. Price 4s. 6d.; $1.

This little book is a recasting of the author's *The Determination of the Necessity for Wearing Glasses*, published in 1888. It is a useful and interesting essay, written by a competent man. The volume shows some signs of hasty preparation, both in arrangement and topography: the dioptric system is presupposed until page 172, there are minor repetitions in the early chapters, Salvinus Armatus figures also as Salvino degli Armati, etc.; but these and similar slips can easily be corrected in a second edition.

The work deals with the measurement of visual acuity (test types are given in an appendix); defects of accommodation (presbyopia); errors of refraction (myopia, hypermetropia, regular corneal astigmatism); general asthenopia; and the use of spectacles and eye-glasses.

A History of Physics in its Elementary Branches: including the Evolution of Physical Laboratories. By F. Cajori. London and New York: Macmillan & Co., 1899. Pp. viii., 322. Price 6s. 6d.; $1.60.

This is a simply written and selective history of physical science, "intended mainly for the use of students and teachers of physics," by the author of the *Elementary History of Mathematics*, which we noticed some time since. While it will doubtless serve the purpose towards which it is primarily directed, it may also be cordially recommended to the general reader, including the student of philosophy and psychology. The treatment is by periods: the Greeks, Romans, Arabs, Europe during

the Middle Ages, the Renaissance, and the seventeenth, eighteenth and nineteenth centuries, are taken up in turn. The chief topics discussed are mechanics, electricity and magnetism, heat, sound and light. Magnus and Lord Kelvin seem to be rival claimants for the honour of having established the first physical laboratory.

L'Instabilité Mentale. Essai sur les données de la Psycho-Pathologie. Par G. L. Duprat, Professeur de Philosophie, Docteur ès lettres. Paris: Félix Alcan, 1899.

The aim of this book is to place the main results of recent psycho-pathology in their proper philosophical setting. The book is largely a "criticism of categories"; but it is, at every page, informed of the concrete material. It is well-arranged, lucid, and reasoned. The author, starting from the most abstract considerations of space and time and of the ultimate relations of neurosis to biosis, arrives at the inexpugnable unity of consciousness (or rather personality) as the fundamental fact. In passing (c. i., p. 15), he reminds the physiologist that his "plastides" are incapable of self-existence. So are the groups of them that form nerve, muscle, organ, and organism. "Mais n'est-il pas plus aisé de comprendre ce système quand on se dit que chaque élément est un conscience représentative d'autrui?" The solidarity of the "plastides" is the harmony of elementary consciousness. A "hierarchy of nerve centres" is "dans une théorie purement physiologique radicalement incompréhensible" (p. 16). Which is to say that we are concerned with a psycho-physical organisation, and perhaps it is well, as here, to drive this home for the edification of the abstract biologist. But the impression one gets from this chapter is that the "unity" has swallowed up the "diversity" without the "labour of the notion". But M. Duprat rapidly passes to more concrete matters. A centre—nervous or mental—is a synthesis of relations. Time relations are "constitutive du tout sujet," and, therefore, since this implies distinction, opposition, there is, at the basis of the psychical life "une discontinuité foncière, une instabilité radicale". But, for apperception of perceptions, duration is necessary. The discontinuity is overcome by the concept of "devenir" (becoming, transition, process, growth, activity, evolution: the term is so common through the book that I offer various renderings). With these first principles, M. Duprat finds the normal to lie—not in the average, or general, but—in the ideal, which is system, or systematisation. The morbid is, by contrast, the asystematic, or rather that which does no wise achieve system. "The evolution of a mind presents a progress or a regression, and in this progress or regression a rhythm." This evolution is "the gradual passage by suitable increments (intermédiaires convenables) from one state to another more complex or less complex". Psychical states are systematised by the tendency towards an end, a determinate personality, permanent amid changing environment (p. 58). From this standpoint, chap. iii. endeavours to define a psycho-pathological fact. The chapter is good and faces fairly the difficulty of marking off diseased activity from normal function. But the net result is not peculiarly convincing. A morbid mental phenomenon would be: "a conscious moment or a series of conscious moments that by the discontinuity of psychical evolution manifests the law of mental instability to the detriment of the systematic growth of a personality" (du devenir systématique d'une personalité) (p. 77). In part ii., M. Duprat introduces us to "les faits psycho-pathologiques." Mental disease due to the destruction of "a group of inferior elements" (p. 80)

is for the biologist and psychologist; but when "la conscience supérieure perd d'abord son devenir normal," so causing trophic and other troubles, it belongs to the psychologist alone to study "la cause première des psychopathies réelles" (p. 81). This distinction, which is frequently referred to, seems to me illegitimate, unless the author means that, hitherto, the only *physiological* method subtle enough to match the subtlety of the psychical concurrences is, if I may say so, psychological. Taken literally, M. Duprat's distinction would contradict the fundamental assumption of the psycho-physical organism. In this part there is some valuable discussion on effort (p. 86), character and personality (p. 92). "En réalité il n'y a que des maladies de la personnalité." From this we proceed to the pathology of the mental functions—(*a*) intellectual instability, including distraction, delirium. dreams, hallucinations, illusions, anæsthesia, amnesia, troubles of judgment and reasoning; (*b*) instability in tendencies, including certain manias, impulsion, repulsion; (*c*) emotional instability; (*d*) instability in actions. M. Duprat combats the necessity for any hypothesis of "double personality". But his positions on this matter, though verbally in strong antagonism to the contentions of the "mental disaggregationists" or "dissociationists," are not, it seems to me, much different in substance. For example, his rejection of mental "vivisection" (as in suppression of states by hypnotic suggestion) gives the case away when it is admitted (p. 259) that, in certain psycho-pathic conditions, we do discover the "effets particuliers de l'imagination, des instincts, des diverses tendances, des habitudes, *quand rien ne les réfrène plus*," that is when the (indispensable to the normal state) superior centre is, so to speak, out of office. Many such points arise for argument; but space forbids. The last part—part iii. —focusses results for the ends of education. These chapters contain many useful practical principles. The fundamental distinction that, it seems to me, is *not* made in the book is the distinction between "unity of consciousness" as an epistemological assumpt and "union of consciousnesses" as, to borrow from physics, the moving point in psychological kinematics. This brief note does nothing like justice to the amount of careful scholarship that the book contains.

W. Leslie Mackenzie.

Lettres Inédites de John Stuart Mill à Auguste Comte. Publiées avec les Réponses de Comte et une Introduction. Par L. Lévy-Bruhl, Maître de Conférences de philosophie à la Faculté des lettres de l'Université de Paris, Professeur à l'École libre des sciences politiques. Paris: Félix Alcan, 1899. Pp. xxxviii., 560.

With the full approval of the representatives of both Comte and Mill, the whole correspondence between the two philosophers is now published. Comte's letters appeared separately in 1877. They are now reprinted from the original manuscripts. Mill's letters are printed from a copy, of which, however, there is no doubt about the accuracy. All the letters now appear in chronological order. The dates are from 8th November, 1841, to 17th May, 1847. A useful index of names and subjects is added. M. Lévy-Bruhl has prefixed to the correspondence an excellent and judicial summary. Mill, he points out, at first gave Comte the impression that he was a disciple. Comte had besides been impressed by the fact that his work had drawn more attention in England than in France. From this he derived the mistaken idea that there was already a definitely "positivist" group in England. The correspondence as it proceeded destroyed both these illusions; disclosing irreconcilable divergences

between Mill and Comte, though Mill was then nearer discipleship than any other Englishman. The "influence" exercised, as M. Lévy-Bruhl makes clear, was entirely that of Comte on Mill. Mill was essentially "receptive," and thought that he and Comte might, by discussion, modify each other's "opinions". Comte had not "opinions," but doctrines that were portions of a system. The question was whether any particular doctrine was logically connected with the rest. This he was prepared to consider, but anything that modified the system as a whole was not a point to be discussed. For him the "positive philosophy" has the character of positive science, and admits of no essential modifications. The divergences that came out most clearly related to the position of psychology in the system of the sciences and to the question about the inequality of the sexes. These, as M. Lévy-Bruhl shows, were not unconnected. Comte entirely repudiated the "eighteenth century psychology," or, as he called it, "metaphysics". Mill's adherence to it in principle was decisively shown by his inclination to regard human beings as approximately equal apart from differences of education. Admitting that the position of Helvétius is exaggerated, he yet thinks there is a portion of truth in it which is neglected in Comte's view—derived from Gall—that there are ineradicable differences of faculty determined by the character of the organism. From this divergence the views of the two thinkers about the natural equality or inequality of the sexes are corollaries. In concluding, M. Lévy-Bruhl draws attention to what is an even more important theoretical difference, though it was less connected with personal sentiment, and hardly comes into full view in the correspondence. Comte's notion that psychology should be treated as a branch of biology is of course not original. His real originality in relation to psychology finds expression in the formula which M. Lévy-Bruhl cites, that humanity must not be explained by the individual man, but man by humanity. Thus there can be no science of character, such as Mill's 'ethology,' prior to the study of the historical evolution of humanity. M. Lévy Bruhl adds that Mill's throwing himself into a work on political economy must have put an end to all hope of agreement. This, however, had not yet presented itself as an irreconcilable difference. Comte, as may be seen in the letters, allowed to political economy a provisional value, and all along remained interested in Mill's treatment of it. As to its necessary subordination to the general science of society, both were at one. The actual agreement, of course, did not extend much beyond this most general position; as no doubt would have become plain if the correspondence had continued till the *Political Economy* was published.

T. Whittaker.

L'Ignorance et L'Irréflexion. Essai de Psychologie objective. Par L. Gérard-Varet, Agrégé de Philosophie, Docteur ès Lettres. Paris: Félix Alcan, 1898. Pp. 296.

Under its apparently vague title this is an original and interesting psychological essay. What M. Gérard-Varet means by "ignorance" is the state of mind of the primitive man, who has "intelligence," but not the "reflective" consciousness characteristic of high civilisation. The author's method is to work backwards from the idealism which he finds to be implied in modern philosophy, and, having at length reached the twilight of the first human thinking, to return thence to the reflective stage. His first generalisation is that the farther back we go, the more of its own states does the mind attribute to something external. For modern philosophy all consciousness—however it may afterwards be interpreted—is primarily the product of the subject, or else constitutes

it. Go back first to Descartes. For Descartes the idea of the infinite—but that alone—is inexplicable from the subject's own activity or as one of its constituents. Now compare Descartes with Aristotle. Although in detail Aristotle may seem to ascribe more to mental activity than Descartes, yet, according to his general doctrine, reason as a whole, and not simply one of its ideas, comes into man from without. After these preliminaries, M. Gérard-Varet has a study of the doctrine of Plato, especially as regards error. The difficulties with which Plato grapples in the *Theætetus* are found to be due to his trying to define 'error' as something given, not as a product of the mind itself. The solution, in the *Sophist*, is that there is a real 'not-being' in things, and that this can be presented to the mind as an object. Going back now to Homer (in the *Iliad*, as most primitive) we find that the emotions and mental conceptions of men and even of gods are almost invariably said to be suggested by some other person, human or divine, or by powers external to the soul. Only in two cases does the poet recognise in the subject the cause of its ideas, *viz.*, in poetic metaphor, where he is conscious of his own creative activity, and in works of imitative art like the shield of Achilles, where the mind of the artificer is conceived as the cause of the production. Can we not find a still more primitive stage, where the products of these activities too are thought to be something objectively given and not made? Such a stage the author thinks can be retraced in the records of more archaic civilisations interpreted according to the modes of thought of modern savages. Myth, before it passes into conscious poetic art, is simply an imaginative filling-in of the data of sense, and for its makers has the same value as the representative elements in perception. The forms of imitative art are endowed with a life of their own—statues of gods become actual guardians of a territory—and so are thought of as evoked rather than created by the artist. Reconstructing the modes of conception thus analysed, we find that primitive "ignorance" conceives of every representation as objectively given, and at the same time as animated and existing for itself. For each thing every imaginable transformation, and every relation with all other things, is possible. There are no such conceptions as those of impossibility on the one hand or necessity on the other. In modern metaphysical phrase, every single representation is at once substance, cause and absolute. Experience and reflexion by degrees impose limits on this primitive tendency of mind, and shape out the conceptions of relativity, impossibility and necessity. This last conception, by which modern science is characterised, has its origin in mathematics and nowhere else. It is from mathematics, in the deductive form, that the conception of undeviating necessity has extended itself to natural causation. The initiation of mathematical science, in this sense, was the work of the Pythagoreans, entangled though they too were in the illusions of primitive realism.

T. Whittaker.

L'Avenir de la Philosophie. Esquisse d'une Synthèse des Connaissances fondée sur l'Histoire. Par Henri Berr, Ancien élève de l'École Normale supérieure, Professeur de Rhétorique au Lycée Henri IV., Docteur ès Lettres. Paris: Hachette, 1899. Pp. x., 511.

A fairly correct general description of M. Berr's philosophy would be "positivism *plus* psychology"; to which it ought perhaps to be added that while the name of metaphysics is suppressed, the thing is retained. The latter part of the description, however, is too little distinctive. It might be applied to so much contemporary thought. The affinity with

positivism comes out clearly in the briefest statement of general ideas. Positivism itself the author declares to be untenable for want of psychology and criticism of knowledge (p. 231). He adopts, nevertheless, the historical study of thought as the method of attaining truth. The aspiration of the thinker must be, not to have the right to say "That is my thought," but "That is what my time has thought in me". One principle affirmed is the "superposition of kingdoms"—inorganic, organic and "thinking". The philosophic synthesis must unify the sciences. The practical end also is unity. For the attainment of this unity the State is to suppress itself, making of society a Church. Or rather, as the author proceeds, to avoid old historical associations, let us substitute for the name of Church that of "Synthesis". He can criticise the existing social order keenly, and can express himself pointedly, as in the incidental remark "La vie actuelle est faite de pièces qui ne s'ajustent pas" (p. 19, note). His attitude towards the future he defines as "expectant dogmatism". The historical synthesis is not yet created, but will be. The guarantee of this is the progressiveness of thought. Materialism and idealism are equally false. The most general position to be laid down is monism, but as a hypothesis. If we say that thought and extension are both phenomenal, and that there is a reality, knowable in the subject, which constitutes equally the subject and the object, our position has nothing absurd, though it is not yet proved. In this "extension of the being of the *ego* to the whole," anthropomorphism is legitimate on condition of being purified. "What psychology is to the conception of science, History is to the direction of the Synthesis: and, like anthropomorphism, anthropocentrism is legitimate, on condition of being well understood." The author is faithful to his historical idea in giving, between his outline of the method of seeking truth and his detailed exposition of the method of establishing it, an extended review of the evolution of European philosophy in the seventeenth, eighteenth and nineteenth centuries (pp. 50-291). The conclusion (pp. 449-511) applies the result to ethics, and is entitled "The Destination of Man".

Le Rôle sociale de la Femme. Par Madame Anna Lampérière. Paris: Félix Alcan, 1898. Pp. 174.

Madame Lampérière's book is not an elaborate study of the social duty of woman. It is rather in the nature of a criticism of the "feminist" movement in France. According to Madame Lampérière the "feminist" movement is the result of a false interpretation of the facts of life. The principal characteristic of the woman's movement is its tendency to regard the conditions of life of both sexes as the same. As men and women are both human beings the "feminists" say that they ought in consequence to have the same rights, the same duties, the same liberties, and that they ought to stand on a footing of absolute equality. Madame Lampérière considers that these ideas are retrograde: she considers that they are condemned by biological and sociological laws: they are the outcome of a superficial liberalism attempting to apply the principles of 1789 in a blind and unthinking manner. It is true that women should have the same rights as men. These rights may be summed up in the right of woman to secure the full development of all her faculties. A careful examination shows that a woman's faculties are different from a man's. They are equal in importance, superior in some respects, quite as necessary for the harmonious organisation of individual and social life. Nevertheless they are different. A woman's movement which is to be really fruitful should take this fundamental fact into account. It should not waste its

energies in attempting to assimilate a woman's life with a man's. This is to attempt the impossible. It should concentrate itself upon the true sphere of feminine activity, it should show what the parental and social duties of women really are. It is by differentiation of duties and not by identity of duties that social progress is effected. Whether we agree with Madame Lampérière or not it must be admitted that she has made out a case which deserves consideration.

Ueber die Grundvoraussetzungen und Consequenzen der individualistischen Weltanschauung. Von WINCENTY LUTOSLAWSKI. Helsingfors, 1898. Pp. 88.

Seelenmacht: Abriss einer Zeitgemässen Weltanschauung. Von WINCENTY LUTOSLAWSKI. Leipzig: Engelmann, 1899. Pp. xvi., 301.

In these writings the versatile and accomplished author of the *Origin and Growth of Plato's Logic* sketches the outlines and develops some of the practical consequences of his philosophic *Weltanschauung* in so lucid and vigorous a manner and in such excellent German that he cannot fail to interest every reader who can get over the shock of surprise at finding the inventor of stylometry—a science (or pseudo-science) which is assuredly destined to provide German professors with congenial employment for some centuries to come—capable of such flights of the imagination. M. Lutoslawski is avowedly an individualist, and as individualism happens just now to be unfashionable, it is not very probable that he will get many to agree with him; and indeed some of his conclusions are hardly such that others can be expected to share them, *e.g.*, none but a patriotic Pole could possibly adopt M. Lutoslawski's faith as to the spiritual mission of the Polish people. Nor, to do him justice, does he appear to be much concerned to convince his opponents. He is more concerned to state his own convictions for the benefit of congenial spirits than formally and fully to refute 'universalism'. Nevertheless, he sees and expresses clearly many of the chief difficulties which beset the attempts to construct a monistic philosophy. We may note especially his account of the futility of Lotze's "M" (*Grundvoraussetzungen*, p. 11-13), of the inconclusiveness of the argument from the commensurability of things (*loc. cit.*, p. 23), of the nullity of the conception of infinite power (*Seelenmacht*, p. 120), and of the impossibility of reconciling the existence of evil and freedom with the assumption of a single all-embracing substance, and that of personality with that of infinity (*loc. cit.*, p. 137).

In all this he is of course traversing ground which is familiar to all who have ever felt the force of the arguments for pluralism. But such objections to the traditional monism will bear repeating so long as it persists in its dogmatic somnolence. When it comes to drawing conclusions from his principles M. Lutoslawski appears more original. For originality in philosophy is largely a matter of courage in working out to their ultimate logical consequences the conclusions implied in a limited number of alternatives, and M. Lutoslawski is certainly abundantly equipped in this respect. Accordingly he ventures to maintain that in the universe of interacting monads (souls) which constitute our world God (or the complex of higher souls) is neither omnipotent, nor omniscient nor infallible, that all souls are uncreated and immortal, and that their telepathic interaction is a simple and demonstrable fact, that the totality of existence is capable of augmentation but not of diminution (*Grundvoraus.*, p. 24), that anthropomorphism is inevitable, and that the

true ethical ideal is to be found in the *Liberum Veto* of the defunct Polish Republic (*loc. cit.*, p. 47).

It is obvious that some of these deductions are more original than prudent, while the proof of others hardly seems sufficient. Thus the argument (*loc. cit.*, p. 48) that there must be a God, because there must be some highest being in the universe, hardly seems sound, and indeed no deity of any sort would seem to be really needed in a scheme which doubts the supreme wisdom of Providence. Again, the postulate of unanimity, irrefragable though it be metaphysically, and safe though it may conceivably be to whisper it in the sanctuaries of the seventh heaven, is hardly one to be rashly applied to the practical exigencies of our terrestrial universe.

The practical corollaries which M. Lutoslawski draws from his doctrines may be passed over lightly. They are greatly affected by his personal equation, very visionary and extravagant, and evidently inspired by the political paradoxes of Plato's *Republic*. One is a little surprised to find that a subject of the Tsar should have been permitted to utter them with impunity, but there is not perhaps any great danger of their having any practical effect on any existing society. Still their greater prominence in *Seelenmacht*, together with the greater length of this work, renders the *Grundvoraussetzungen* decidedly preferable reading for the student of M. Lutoslawski's philosophy.

F. C. S. Schiller.

Geschichte der neueren Deutschen Philosophie seit Hegel. Ein Handbuch zur Einführung in das philosophische Studium der neuesten Zeit. Von Dr. Phil. Otto Siebert. Göttingen: Vandenhoeck und Ruprecht; London: Williams & Norgate, 1898. Pp. 496.

The description of this work given on the title-page is somewhat misleading. Whatever may be the value of the work as a book of reference, it is hardly fitted to serve as an introduction to the study of the period with which it deals. In the Preface the author seems to give two rather different explanations of the aim and scope of the work. After speaking of the importance of a study of the past achievements of philosophy, he goes on to say, "Die Geschichte der Philosophie will dazu behilflich sein, sie sorgt, dass die Mühe und Arbeit früherer Geschlechter den lebenden nicht verloren geht, sie will die Meister vor Augen führen, damit die Jünger selbstständig weiterarbeiten". But a little farther on he explains his work as being "eine Bearbeitung der Geschichte der neueren Philosophie seit Hegel, welche möglichst alle irgendwie erwähnenswerten philosophischen Erscheinungen berücksichtigt". Now these two accounts do not seem to agree very well. The "Meister" of the first can hardly be identified with the "irgendwie erwähnenswerten Erscheinungen" of the second. And in any case the scope assigned to the work in the second account seems quite inconsistent with the purpose of the work as set forth on the title-page.

Certainly it is in the spirit of the second account that the work itself is written. It deals with a very large number of philosophers of all grades of importance (the index of mere names runs to six pages), and to any one philosopher the author devotes as a rule (there are comparatively few exceptions) not more than three pages, very often a page or less. Within this compass he gives an abstract, apparently as nearly as possible in the phraseology of the philosopher himself, of the latter's more important doctrines or works. In many cases it is not easy to see what useful purpose is served by such a method. Thus in the case of several of the

Hegelians, *e.g.*, G. Biedermann, J. E. Erdmann, Michelet, and Rosenkranz, the abstract becomes a mere string of categories, divisions, and subdivisions, the enumeration of which is as useless as it is tedious. That a more useful method could have been adopted is occasionally evidenced by the author himself. His statement of the points of difference between Schopenhauer and Frauenstädt gives just what is of service.

The work is divided into three main sections. An introduction, too brief and conventional to be of much use, and a concluding survey, which is little more than a reiteration of names, may be disregarded. The first main section, extending to rather more than half the book, deals chiefly with the schools or followers of the masters of the previous period, though it also has chapters dealing with Schopenhauer and Trendelenburg. Within each school or lesser group the names follow each other, as a rule, in alphabetical order. The arrangement of the second and third main sections is more open to question. The second, entitled "Reaktionserscheinungen," contains chapters dealing with Materialism, Positivism, and "Der Aufschwung der Naturwissenschaften"; the third, entitled "Neue Versuche," chapters dealing with "Der Neukantianismus" and "Versuche zu neuer Systembildung". The question of classification is naturally difficult and disputable, but certain of the author's decisions seem rather arbitrary. The chapter on "Versuche zu neuer Systembildung" is by no means exclusive, since twenty-seven such constructions are enumerated and summarised. Yet Wundt and Avenarius appear only as "Reaktionserscheinungen," the former being (very inadequately) dealt with in the chapter on "Der Aufschwung der Naturwissenschaften," the latter in that on Positivism. Paulsen appears somewhat questionably as a Neo-Kantian. Among the new constructions, the philosophies of Lotze and Eucken receive most attention. The account of Eucken, "Der bedeutendste systematische Philosoph der Gegenwart," extends to 15 pages, that of Lotze, covering 12 pages, is taken almost exclusively from the "Microcosmus," the early books of which are analysed at length, while the last is dismissed in a paragraph.

H. Barker.

La Psicologia Contemporanea. By Guido Villa. Torino: Fratelli Bocca, 1899. Pp. 660.

"The time is rapidly approaching"—Dr. Stout's prefatory words to the *Analytic Psychology* will be remembered—"when no one will think of writing a book on psychology in general, any more than of writing a book on mathematics in general." If this be so, if the youngest of the independent sciences, still struggling with a leading string or two, be in this respect nearly abreast with the oldest of the sciences, the time is specially appropriate for the appearance of Prof. Villa's review of what has been written on the more comprehensive lines. Political Economies "in general" are probably at the same stage. Research is leaving the apprehension of synthetic unity for awhile to grapple with the manifold piecemeal in monograph and *Beitraege*. And the present author's effort to give us "a historico-critical introduction to contemporary psychology" has in that other field the illustrious precedent of the *Guida* by his fellow-countryman, Dr. Cossa, now well-known in this country.

Prof. Villa, one of Italy's youngest thinkers, advanced in views and withal *simpatico*, was called last autumn, on the completion of the present work, from the post of teacher of psychology at the Lyceum of Lugano to the corresponding chair at the Lyceum of Leghorn. The

book is his first work of importance. In it his ostensible purpose is to set out, not so much a complete exposition of the methods and results of contemporary psychology as a statement of "the general principles on which it is based, as well as the ways by which these have evolved from philosophic doctrines and antecedent psychology". And he confines himself, of course, to work done in Germany, England, America and France, trusting, as to his own land, that he may help to stimulate the as yet very tender growth in her of psychological research. The compilation has occupied some years of labour, and has taken the following shape: A brief introduction on the present position of psychology. Seven very lengthy chapters on (i.) the historical development of psychology, (ii.) definition and scope of it, (iii.) body and mind, (iv.) the methods of psychology, (*a*) in research, (*b*) in exposition, (v.) psychical functions, (vi.) consciousness, (vii.) the laws of psychology; conclusion, including brief discussions on theories of "social and historical consciousness" and of the immortality of consciousness, and a general summary.

There was much to say; much also is here said. The diction is generally lucid and straightforward, nevertheless the author seems to prefer to more concise methods the rhetorical device of impressing by repetition. To take only one instance, there is scarcely a chapter in which the "intellectualistic" character of English psychology is not set forth and discussed. This plan of "rubbing it in" is not without its advantages where, as in this case—and in, alas! how many other cases of this class of research—the book is launched on the world without either index or page reference to the details of its contents. One cannot open the book at hazard or study any one chapter without practically sampling what the writer has to say. On the other hand a good deal of needless diffuseness and repetition might have been avoided to good purpose. And 660 pages is a deal to read. The more need then for more subdivision than is afforded by a few chapters of vast length, and for all the machinery possible by which an author may take his reader by the hand and aid him in the gentle art of selection. Even for the Italian reader, unless he be a scholar of leisure (is there now anywhere such a species?), the digestion of the work is not made as easy as it might have been. Both the investigator and the learner have their special reasons for requiring many sign-posts and mile-stones. How much more orphaned must the foreign student feel, who, with possibly only a smattering of Italian, has gladly hailed the appearance of Prof. Villa's book as supplying a great want unmet as yet, either wholly or in part, by the psychological literature of his own country? The work will, in course of time, if that want continues unsatisfied, find its way into translations, and richly deserves such a fate. Meanwhile, many a reader will have to wait whose acquaintance with Italian might, with the aids I have indicated, have proved adequate to his understanding the contents.

That the extent of the book's usefulness should be thus handicapped is the more to be regretted when the special benefit is considered which accrues to the English and the German student through a "historico-critical" comparison of the two chief traditions of constructive psychology as made by one whose country and language are as yet undominated by any such psychological tradition of its own. They learn to know their own tradition from the outside, and to estimate where it is strong or weak in its standpoint and evolution by holding up to it the lines worked out in other schools. And the criterion of efficiency in the compilation of such a comparative study must of course lie in the power shown by the compiler to lay hold of the vertebral features of each school of doctrine and trace their development up to the present day with justice and with sympathy.

On the whole the author has succeeded. The tone is one of appreciation and disinterestedness. Nor is this marred by his preponderant admiration for the great work of Wundt as marking the furthest advance in the psychology of to-day. His materials are rich and comprehensive and no branch of modern research is omitted. Nevertheless for all the trees one can see the wood. The specific character of German psychology stamped upon it by the tendencies of German philosophy is indicated in broad lines; the conditions and growth of the psycho-physical movement broadening into a thorough-going experimental development and the quest of the individual as a psycho-physical unity is fully gone into. The "intellectualism" shared by both German and English psychology —*i.e.*, psychologising by way of *Vorstellungen* with a corresponding relative neglect of the more intimately subjective activities,—but working in England by associationism, in German by the concept of syntheses, is shown as having been upset in Germany by the influence of Schopenhauerism, the "volontaristic" tendency paving the way to a truer conception of the essential unity of the psychical continuum. In England we are found to be still holding by our intellectualistic psychology, although the great analysis by Dr. Bain of emotion and will is duly appreciated. Full justice however is done to the great work accomplished by English psychologists of extricating their subject-matter from philosophy and of raising it by their experiential methods to the threshold of a science among the sciences. In our anxiety, however, to set out an analysis of mental phenomena as we find them, the author holds us too descriptive merely, too little explanatory. Is it perhaps the fact that he has not succeeded in obtaining a clear grasp of the real explanatory work done by English "intellectualism"? Berkeley stripped our philosophy of the independent reality of the external world *as knowable*. Hume stripped our philosophy of a subject entity as inferable. They left us instead a world of sensations and ideas to analyse and to classify, and the construction therefrom of an intelligible theory of how we come to interpret them as external world. It is this attempt, continuously handed on, to explain the external world *as known*—a task to which the doctrine of association is only ancillary—which is the chief output hitherto of British psychology in a progressive line of development from Hobbes, Locke and Berkeley, down to Bain, Sully and Croom Robertson. And herein may be found wealth enough, not only of descriptive analysis but of explanation as well. Prof. Villa doubtless knows all this far better than his present critic, but I do not find it clearly set out, nor justice done to the realisation of the importance of explanation as end in British psychology. Yet Berkeley's theory of vision and Brown's theory of muscular sense, as wrought up by English nineteenth century psychology into its theory of external perception, are alone sufficient to vindicate that school on a charge of mere descriptive analysing. But its modern representatives do not seek only to explain the externality of the not-self. They are turning from what Berkeley left us to the subjective world without subject left us by Hume. In the works of Drs. Ward and Sully we have the beginnings of an explanation in terms of psychic process of the growth of the concept of the self. Prof. Villa has gone at some length into the metaphysical hypotheses involved in the essential concepts of psychology, and has given interesting *aperçus* into such modern speculative developments as neo-materialism, neo-Thomism, neo-vitalism and the like. But what we chiefly seek, in a conspectus of contemporary psychology is a succinct account of how far the latter has gone in explaining, in terms of mental procedure genetically treated, "the crowd of facts concerning our mental life revealed by analysis of ordinary experience".

Of the methods and the gradual stages by which psychological research is making way towards explanatory doctrine the reader will find a comprehensive account and a quantity of useful bibliography. (A curious omission, by the way, in the historical chapter, is that of Spinoza's analysis of the emotions.) Full justice to the work cannot be done in this brief space. But it will prove itself a valuable aid to the student and scarcely less to the historians of psychology.

C. A. F. Rhys Davids.

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S. Rappaport, *Spinoza und Schopenhauer*, Berlin, 1899; London, Williams & Norgate, pp. 148.

F. Masci, *Elementi di Filosofia*, volume i.,—*Logica*, London, Williams & Norgate, 1899, pp. 529.

VIII.—PHILOSOPHICAL PERIODICALS.

Philosophical Review. Vol. viii., No. 2. **J. G. Schurman.** 'Kant's Theory of the *a priori* Forms of Sense.'—II. [Space is not a necessary perception *a priori;* it is an empirical notion. It is the mode in which a certain aspect of reality reveals itself to consciousness, and is derived not from intensity and quality (mental chemistry) but from a given extensity. Kant's space fails to account for the universality, the synthetic nature, and the objective validity of geometrical propositions; empiricism is adequate to the first two characteristics, and is not perplexed by the third.] **A. Lefevre.** 'The Significance of Butler's View of Human Nature.' [The central doctrine in Butler is that of the organic and harmonious wholeness of human nature; his method is teleological. He envisages human nature as a system, with conscience as reflexion supreme, under that the two principles of reason, self-love and benevolence, and under these the appetites, etc. The end to which the system is conducive is morality. Butler differs from Kant in conceiving the relations of the sensible and the rational self to be organic. Problems of obligation, of vicious action, of the universal self.] **L. M. Solomons.** 'The Alleged Proof of Parallelism from the Conservation of Energy.' [The question of the freedom of the will has to do with the laws governing the time and place of transformation of energy, not with quantity of energy. Let A be psychical cause, and B physical effect: whence comes the energy represented by B? So far as the conservation of energy is concerned, it might come from the other side of the moon. Hoeffding and Ebbinghaus employ an old-fashioned idea of causation, and assume that energy passes from cause into effect, a survival from scholastic metaphysics. The real point at issue is the mechanical theory of the universe. 'Mechanical' may mean ateleological (in which case interaction may be held), or dynamical (all laws are laws of motion). But the dynamical theory is at best a working hypothesis for physics, and has no usefulness in psychology. Hence parallelism is non-proven.] Discussion. **D. S. Miller.** 'Professor James on Philosophical Method.' [Critique of *Philosophical Conceptions and Practical Results.* James is pragmatic (whither does a conception go?), the English empiricists genetic (whence did it come?). His guiding thoughts are those of spontaneous activity and of risk. Does, then, truth depend on success, on biological or social utility?] Reviews of Books. Notices of New Books. Notes. **W. B. Waterman.** 'Rare Kant Books.'

Psychological Review. Vol. vi., No. 2. **G. T. Ladd.** 'On Certain Hindrances to the Progress of Psychology in America.' [Progress is hindered by the aloofness of teachers from the real world; by the trend towards popularising; by the temper of psychological discussions; by the intrusion of the commercial spirit into science; by the servility of psychology to related sciences. All these hindrances are matters of *personnel* rather than of *matériel.*—One must distinguish between psychologists and psychologists, however: there is now a rank and file of

workers in every science. If we take the best men as representative of psychology, the first, third and fifth of Prof. Ladd's objections seem to be illusory. The second and fourth contain an element of truth; but it is American conditions rather than American psychologists that are to blame.] **H. Ellis.** 'The Evolution of Modesty.' [The emotion of modesty, a psychic secondary sexual character of the first rank, is compounded of two fears: sexual fear, of the action of the male, and social fear, of evoking disgust. Clothing and bodily ornament bring in the new factor of *coquetterie*. Then comes the conception of women as property. Finally we have the elaboration of a social ritual of modesty; but extension does not mean intensification. The blush, the sanction of modesty, indicates that the emotion is a very radical constituent of human nature in all stages of civilisation.] 'Proceedings of the Seventh Annual Meeting of the American Psychological Association, New York, December, 1898.' Discussions. **C. L. Herrick.** 'The Material *vs.* the Dynamic Psychology.' [Psychology is vitiated by its retention of the substance-idea. Consciousness is really activity, a form of energy. Adopting this standpoint, we can approach with some hope of answer the vexed questions of parallelism, of the seat of mind, and of biological vitalism.] **W. Caldwell.** 'The Postulates of a Structural Psychology.' [Critique of Titchener, from an epistemological point of view.] **W. Caldwell.** 'Psychological Method.' [Critique of McDougall.] Psychological Literature. New Books. Correspondence and Notes.

Revue Philosophique. August, 1899. **Dr. Hartenberg.** 'La Peur et le Mécanisme des Émotions.' [An emotion is a motor reaction consisting of four successive nervous phenomena, *i.e.* (1) a centrifugal motor cortical excitation, (2) a somatic motor reaction, (3) a centripetal sensory reaction, (4) *a* the reception at the vortex of the sensory excitation; *β* (epiphenomenon) consciousness; hence an emotion may be defined as an internal movement, producing an internal sensation.] **G. Palante.** 'L'Esprit de Corps.' [*Esprit de Corps* expresses the collective will-to-live of the group who experience it. It is at its height in the liberal professions. It fosters strict conformity to type, and hence mediocrity at the expense of the finer flower of individuality; it is, therefore, inimical to morality.] **L. Marillier.** 'L'Origine des Dieux.' [The author continues his exposition of Mr. Grant Allen's theories as propounded in his *Evolution of the Idea of God*, singling out for special attention the chapter on "The Fabrication of Divinities," in which the origin of the God-idea is traced back to that of the soul of a dead person.] Revue Critique. **G. Belot.** 'La Psychologie du Socialisme d'après Gustave Le Bon.' Analyses et comptes rendus. September, 1899. **L. Marillier.** 'L'Origine des Dieux (Fin.).' [A careful critical examination of the book, the contents of which have been expounded in previous articles. While admitting the value of the facts brought forward and of the many good qualities of the work, the writer shows that the method employed is not one on which any dependence can be placed.] **A. Naville.** 'La Nouveauté dans la Conclusion: Étude Syllogistique.' [Goes over the old ground of the value of the syllogistic conclusion: are we confined to the alternative either already known or unjustified? The writer answers in the negative and maintains that the term canon of syllogism is not the *dictum de omni et nullo*, but the law of substitution which Jevons formulated. **G. Bos.** 'Du Temps de Croyance.' [An act of belief is a synthesis, and occupies time. This time may be analysed into (1) *temps opératoire*, (2) *temps de sommation*, (3) *temps de croyance*, in which latter the synthesis proper takes place. The length of time required is directly proportional to the resistance which the idea to be believed encounters

in us, and this resistance is constituted by pre-existing tendencies to act in a contrary direction.] **Varchide.** 'Recherches experimentales: Observations sur le pouls radial pendant les émotions.' Analyses et comptes rendus.

Revue de Métaphysique et de Morale. November, 1898. **G. Vailati.** 'La Méthode déductive comme Instrument de Recherche.' [To Aristotle, the characteristic distinguishing the conclusions of deductive reasoning from those of induction, was that in the former case the conclusion could not be denied without falling into a contradiction or without casting a doubt on the premises, while the results of induction might be rejected though the data remained unimpeached. His notions of deduction were based solely on its use in geometry and rhetoric. The method was used to guarantee probable assertions by reducing them to others more probable or certain. In modern philosophy, as early as the time of Descartes and Gassendi, we find deduction applied to explain and anticipate experience, no longer confined to determining the consistency of proposition with proposition. So too, in Galileo's advances in mechanics, this method filled the most important rôle. Further, there is an important difference of motive as between the ancients and the moderns. The Greeks sought relief from the uneasiness of uncertainty in facing nature, a riddance of the fear of its mysterious powers. With them deduction did not aim at following theories out to that point where experiment might test the validity of alleged laws and determine their limits. Bacon's attack on the syllogism deals rather with the scholastic abuse of deduction than with the true Aristotelian method. Again, when Mill charges the syllogism with the fallacy of a vicious circle, he forgets that to assert the implication of the conclusion in the premises, means only to assume that the fundamental propositions of a science are sufficient to prove its theorems without further appeal to experience. Notwithstanding his criticism of Mill, the author goes on to describe in much the same way as Mill those scientific applications in which the method is most successful, in particular where there is "intermixture of effects". A notable feature in the essay is the wealth of illustration from mechanical science.] **Chr. Marechal.** 'Un Fragment inédit de l' "Esquisse d'une Philosophie" de Lamennais.' [This article contains an instalment of a sketch of social philosophy by Lamennais, the manuscript having been recently discovered at the Bibliothèque Nationale. The main object is to show in the family and in the idea of property, the invariable form in which alone human progress may be developed, to show in property and family the "plastic realisation" of the eternal laws which appertain not only to the Creation but also to the very existence of the Creator. It aims at laying the foundations of a "social religion," a certain number of extremely simple metaphysical and moral principles which render possible a union among human beings.] **Maurice Blondel.** 'L'Illusion Idéaliste.' [The first part of the article criticises the traditional philosophies regarded as phases of a common "intellectualism," the extremes being idealism and realism. It concludes that whichever of the sides we adopt, our problems are insoluble, our assertions are involved in contradictions. The second or constructive part suggests a point of view from which we may hope a greater measure of success, without losing touch with the tendencies of the time or breaking with tradition. Philosophy should hold to what is real, concrete, living: it should attend more to the particular, the individual, the personal: it must recognise the superiority of love and action above theory: it must recognise the irreducible originality of the practical.] In the department headed "Discussions" there are two short articles dealing with the fundamental

principles of mathematics, both extremely interesting but not readily lending themselves to condensation. They are: G. Lechelas, L'Axiome de libre mobilité, and B. Russell, Les Axiomes Euclidiens sont-ils empiriques?

Revue Néo-Scolastique. No. 20. **J. Huys** ('La notion de substance dans la philosophie contemporaine et dans la philosophie scolastique') examines the notions of substance as found in the various systems of philosophy that are dominated by the influence of Kant, and compares them with the notion of substance as understood by scholasticism. He contends for the reality of substance, not only in the external world, where Wundt would allow its reality, but also in the internal world, where Wundt would deny it. He maintains that, besides the transitory phenomena of the Ego, there is in the Ego something permanent, which is the subject in which and by which the phenomena are produced. The soul, then, is not "the sum of psychical activities," as Wundt would say; nor "the *ensemble* of vital phenomena" (das ganze Seelenleben), as Paulsen would say; but is a substance. **A. Thiéry** ('Qu'est-ce que l'art?' *suite et fin*), continuing his examination of the æsthetic formula of Count Tolstoi, "art is the means of transmitting sentiments to man," concludes that if this formula be correct, the cook of a Lucullus must be beyond question the greatest artist the world can know, seeing that such a one has the power of exciting to an illimitable extent that appetite which is the most universal of all sensations. **D. Nys** ('La nature du composé chimique' *suite et fin*) refuses to believe that bodies chemically compounded are nothing more than mere aggregates of elementary substances, and maintains that, on the contrary, these compounds are actuated by an essential unity. **Dr. St. George Mivart** ('L'utilité explique-t-elle les caractères spécifiques?'), basing his conclusion on a lengthened study of the Lories, or brush-tongued parrots, argues that to say with Dr. Alfred W. Wallace that all the distinctive characteristics of species can be accounted for by their utility, is to say what is not merely uncertain, but also improbable. **G. De Craene** ('La croyance au monde extérieur') upholds the scholastic theory as to the externality of the world in opposition to idealist ideology on the one hand and positive ideology on the other.

Zeitschrift für Psychologie und Physiologie der Sinnesorgane. Bd. xx., Heft 4 und 5. **K. Zindler.** 'Ueber räumliche Abbildungen des Continuums der Farbenempfindungen und seine mathematische Behandlung.' [Locality and colour are the only experiences of ordinary life that form continuous manifolds of several dimensions (Riemann). A theoretical discussion of the colour-figure is needed; the experiments necessary for its actual construction have not yet been made. Definition of a psychological colour figure; requirements of continuity distance and direction. The historical figures: Newton, Mayer, Lambert, Runge; the recent figures of Höfler and Ebbinghaus. Maxwell's colour-triangle. The possibility of such two-dimensional figures proves that the continuum of colour-sensations is not more than tridimensional. Hering's proof of Newton's law of colour-mixture simplified. One-dimensional colour continua: shortest lines, lines of constant curvature, lines of constant direction, mixture-continua. Substitutive measurement of colour-distances. The arithmetical colour-scheme. Helmholtz' investigation of the shortest colour-lines. Methods of construction of the psychological colour-figure: Hering's *Nuancirungsdreieck*, Helmholtz' shortest lines. Colour *v.* geometry in mathematical instruction.] **W. Thorner.** 'Ein neuer stabiler Augenspiegel mit reflexlosem Bilde.' **C. B. Morrey.**

'Die Präcision der Blickbewegung und der Localisation an der Netzhaut-peripherie.' [The error of localisation increases with increase of the distance of the point of stimulation from the centre of the retina. In localising an object in the feld of vision, we incline to bring it too near the fixation-point of the primary position.] **W. Uhthoff.** 'Ein Beitrag zur congenitalen totalen Farnbenblindheit.' [Central acuity of vision 1/5-1/6 of the normal. König's foveal scotoma found. Relation of lateral to central vision dependent on illumination. Nystagmus, corresponding to extent of scotoma. Ophthalmoscopic status normal. Changes of central acuity of vision with intensive change of illumination furnish a general confirmation of the results of König and Pflüger. Stimulus-limen of light sense approximately normal ; macular limen higher than eccentric (Hess and Hering). Sensible discrimination a function of intensity of illumination (Hess and Hering). Dark-adaptation quicker than normal. Colour-sense as described by previous observers. Red end of spectrum curtailed ; violet not. Maximal brightness in green of 530 μ. Hering's view of white and coloured valence of colours confirmed by comparisons with the normal eye.] **W. von. Zehender.** 'Die Form des Himmelsgewölbes und das Grössererscheinen der Gestirne am Horizont.' [The watch-glass form of the heavens is not a matter of direct observation, but a traditional doctrine. Acute angles, horizontally directed, are underestimated ; vertically directed, overestimated. Hence the overestimation of the moon at the horizon, and the supposed watch-glass form of the sky. Both are referable to Volkman's law of the apparent divergence of two vertical parallels. The spherical form of the sky is really better founded than the watch-glass form.] Besprechung. [Martinak on Erdmann, Dodge and Huey (psychology of reading).] Literaturbericht. Vol. xx., Heft 6. **W. Sternberg.** 'Geschmack und Chemismus.' [The only two tastes, in the strict sense, are sweet and bitter. All other 'tastes' are compounds of taste and touch. Bitter makes us hungry, sweet makes us thirsty. In spite of the diametrical difference for sensation, the molecules of sweet and bitter are very closely related, and are easily transformed the one into the other; a proof of the delicacy of the organ, and a fact of teleological significance.] **O. Abraham** und **K. L. Schaefer.** 'Ueber die maximale Geschwindigkeit von Tonfolgen.' [Siren experiments. From contra-octave to fourth accented-octave the trill (tremolo) limen is given with a tonal duration of about 30 σ ; the musical interval employed is unimportant. A musical figure can be rightly cognised when the duration of the separate tones is about 100 σ.] **O. Abraham.** 'Ueber das Abklingen von Tonempfindungen.' [We hear a trill (tremolo) when the time of fall is negligible in relation to the duration of the tones, and a rough clang when the time of fall is too long. The foregoing experiments show that the time of fall is the same for all tones, irrespective of pitch. Mayer's results to the contrary are explicable from the principles that a sufficiently large fluctuation of intensity means the inaudibility of the weaker tone, and that high tones are psychologically more intensive than low tones of the same objective strength. Musical experience is explained by resonance and physical after-vibration.] **A. Koenig.** 'Bemerkungen über angeborene totale Farbenblindheit.' [Shows how Uhthoff's results confirm the author's theory as regards the central scotoma, nystagmus, quantitative determinations on spectral complementaries, and comparative visual acuity of normal and totally colour-blind eyes.] Literaturbericht. Vol. xxi., Heft 1 und 2. **H. G. Hamaker.** 'Ueber Nachbilder nach momentaner Helligkeit.' [Experiments with resting stimulus (method of Hess and Bosscha), and with moving stimulus (method of Bidwell). Hypothesis of distribution of

constituent after-image processes to rods and cones. An excellent paper: too detailed for summary.] **L. Hellwig.** 'Ueber die Natur des Erinnerungsbildes.' [If we accept the amœboid-movement theory of the dendrites of the nerve-cell, we can explain the memory image. Stimulation of the cell lengthens the dendrites. Two dendrites, brought into contact by the stimulated activities of two cells, remain stuck together; the cells are permanently combined, and therefore conjointly excitable on the mental side.] **C. Stumpf.** 'Ueber den Begriff der Gemüthsbewegung.' [(1) We need make no distinction between *Affect* and *Gemüthsbewegung*. (2) The emotion, unlike the simple feeling, is based on judgment. The moods are limiting cases between emotions proper and simple feelings. Emotions are acquired; the new-born child shows only a reflex correlation of movement with unpleasant sense-feelings. The judgment of emotion may be in terms of ideas only, not necessarily in terms of perception; and the character of emotion changes, as the present is reinforced by the ideas of past and future. Provisional analysis of the æsthetic emotions. Desire refers to a Should-be, emotion to an Is. The term passion covers habitual states, acquired dispositions of feeling or desire. The peculiar quality of an emotion is indescribable; but the intellectual elements are parts of its substance, not merely conditions of its origin. (3) Critique of Ribot's theory, that there is only a difference of degree between emotion and sense, pleasure and pain. (4) The James-Lange theory contrasted with the 'orthodox' view of emotion. (5) The theory rests on two main arguments: (6) that if all the 'concomitant' organic sensations are taken from an emotion, no emotion is left; while cases of anæsthesia show a dwindling of emotion proportionate to the disappearance of the organic sensations; and (7) that emotions can be set up (by drugs, in certain diseases) under conditions where ideas of object are wholly wanting. Neither can hold its own against criticism. Moreover (8) the basal ideomotor law neglects the fact of the limen. The experiments in support of it are, also, open to objection; and there is evidence against it. Further, when all is granted, the 'reverberation' need not be sensed. (9) Arguments against the theory. The definition of emotion is not convertible. And there is not the requisite intensive, qualitative and temporal correlation between emotion and organic sensation. (10) The emphasis laid on organic sensations may assist in later description and classification. (11) The theory will almost certainly be of service in disentangling the conditions of origin of emotion. The facts of apathia are especially deserving of study.] **C. Stumpf.** 'Beobachtungen über subjective Töne und über Doppelthoren.' [A careful record of subjective tones, constant and variable, of rhythmical intermittence of tones and noises, and of diplacusis. The observations begin with the year 1875.] Besprechungen. Literaturbericht.

Philosophische Studien. Bd. xv., Heft 1. **E. Buch.** 'Ueber die Verschmelzung von Empfindungen, besonders bei Klangeindruecken.'—1. [Definitions of fusion (Stumpf, Cornelius, Kuelpe, Wundt) all tend to express the fact that simultaneously present sensations are less clearly apprehended than isolated sensations. Preliminaries to an examination of the concept: 'sensations' are always conscious phenomena; 'fusion' is determined by the effective co-operation of a plurality of stimuli; we must set out with the conditions of clear apprehension, and work from them to the conditions of fusion. The first such condition is attention, consisting essentially of an inhibition of disturbing impressions at large and of our own movements in particular, but containing also in cases a direct predisposition or adaptation of the sense-organ to a given impression, and implying interest, immediate or mediate, in the result of mental

activity. Attention leads us to apprehension. Apprehension of ideas means their relation and characterisation by aid of other known ideas; it may arise by way of comparison or of association, or both. Interest is centred in the ideas themselves. Apprehension of stimuli means inference from ideas to their external conditions; interest centres in outside reality, and in ideas only so far as is necessary to their interpretation. We pass next to analysis. This requires attention, and is best performed by aid of a fancy-image of the constituent to be analysed-out. Further conditions are intensity of stimuli and subjective receptivity (practice, etc.). It follows that fusion is, originally, the normal mode of manifestation of ideational contents, disappearing gradually with the growth of the faculty of attention. Analysis rather than fusion is the fact to be explained. Difficulties of analysis are distribution of attention; weakness, quickness, etc., of stimuli; lack of practical interest, etc. General comparison of sight with taste and hearing in these regards.] **E. M. Weyer.** 'Die Zeitschwellen gleichartiger und disparater Sinneseindruecke.'—II. [Results. (1) Sight. Temporal limina for the discrimination in daylight of two sparks as against one; for flicker, in dark and daylight; for separation, in dark and daylight. (2) Hearing. (3) Disparate impressions. Touch and hearing, touch and sight, sight and hearing, in both orders, with attention both on the first and on the second stimulus.—An exhaustive study.] **C. D. Pflaum.** 'Neue Untersuchungen ueber die Zeitverhaeltnisse der Apperception einfacher Sinneseindruecke am Complicationspendel.' [Experiments with the complication pendulum. (The author says nothing of the defects of the instrument, unless the words "unguenstige aeussere Umstaende" refer to them: the present writer has never seen an instrument in which the pendulum did not kick at the moment of complication.) Negative time-displacement prevails, but the presence of positive (Wundt) is confirmed (three new observers), as against von Tschisch. A Table gives the extreme values for all five subjects. Unfortunately, the question of Wundt's interpretation and James' criticism is left untouched.]

Zeitschrift für Philosophie und Philosophische Kritik. Band cxiii., Heft 1. November. **Eduard von Hartmann.** 'Zur Auseinandersetzung mit Herrn Professor D. Dr. A. Dorner in Koenigsberg.' [As the title indicates, this article is a statement of the points at issue between the great pessimist and his Koenigsberg critic. There are some nine headings ranging over ethics, psychology and metaphysics. Von Hartmann aims at giving rather a clear statement of the differences than an argument offensive or defensive.] **Dr. Raoul Richter.** 'Die Methode Spinozas.' [Spinoza's philosophy never loses its attractiveness; its matter keeps in touch with the most modern speculation, and its method suggests more ideas to our present critical epoch than that of any other great thinker. That method cannot be fairly described as ontological, we must put it more explicitly as *consciously* ontological. The constantly recurring transition from logical processes to real, from *ratio* to *causa*, expresses no mere fallacy of ignorance but the metaphysical foundation of the system, the equation on which the Ethics is based, the logical = the real. To him "who has once tasted Kritik" the system appears as one in which certain abstract ideas receive carefully constructed definitions, and the bulk of the subsequent development consists in unfolding the elements thus wrapped up, and smuggling in the predicate of real existence. But Spinoza more than once expresses his contempt for abstract ideas; he censures the Stoics for thus corrupting their system, and asserts the uselessness of all *notiones universales et transcendentales*. Truth comes not from abstraction but from the *notiones communes*.

Herein lies the difficulty and the justification of the system, the true discrimination of the *universalis* as abstract and the *communis* as concrete (any translation of the latter term must cause confusion). *Notiones communes* represent what is wholly concrete, nay ultimately, solely of what is most concrete of all, Substance, God. Thus alone can we explain the warning "*ne misceamus quae sunt in intellectu cum iis quae sunt in re*," . . . a warning that otherwise so strangely contradicts the fundamental equation. Further, Spinoza not merely disclaims a smuggled ontology, he even assigns the source of the illusion. "Thus (*i.e.*, from the nature of this distinction) those fixed and eternal things, though singulars, will be to us, on account of their ubiquity and widespread power, *as though* they were universals or species." The system no longer appears as an unconscious transition from thought to reality, but conversely, as an endeavour to give in the understanding the truest possible exposition of the course of nature. Thus proof of the real existence of the content of the *notiones communes* there cannot be; the existence itself would be classed as one of the *notiones universales*. Thus the *proof* of God's existence must take a secondary place; properly speaking it is postulated. In confirmation of the theory advanced, the author points to the account of the degrees of knowledge—the highest being not demonstration but intuition. Then, too, the "criterion of truth" rests not on proof but on an immediate feeling of certainty. "As light reveals both itself and darkness, so truth is its own standard and that of the false." Why if truth be not proof, does Spinoza overwhelm us with proofs? The answer must be that man's impotence, his subjection to passion, shuts him out from the high road to truth, leaving open only the second best pathway through proof. In further confirmation the author points out that the famous "Parallelism" must now receive a position in Spinoza's methodology as well as its accepted metaphysical import. Correctly stated it asserts that *adequate* thought corresponds to actual existence; hence the development of knowledge out of the highest notions becomes a mirror of the development of things and events in nature itself.] **Lic. Dr. C. Lülmann in Stettin.** 'Fichtes Anschauung vom Christenthum.' [After stating in exhaustive subdivisions Fichte's views of Christianity, Dr. Lülmann proceeds to a detailed criticism. His conclusion is that, following Kant's impulse, Fichte attempted to base Christianity on a foundation not dogmatic but purely speculative. That the first attempts failed need not cause surprise.] **Adolf Lasson.** 'Jahresbericht ueber Erscheinungen der philosophischen Litteratur in Frankreich aus den Jahren 1894-1895.' [A full and appreciative account of the philosophical productions of French writers during the two years mentioned. Its sympathetic character appears in the terms in which the author estimates the value of the work accomplished: "The older literary excellencies of France are still to the fore, clearness of thought, skill in arrangement, agreeableness in form. New merits have appeared, an endeavour after thoroughness and a comprehensive erudition seeking to make use of whatever may have been done elsewhere or at other times."]

Vierteljahrsschrift für Wissenschaftliche Philosophie. Jahrg. xxxiii., Heft 3. **Christian v. Ehrenfels.** 'Entgegnung auf H. Schwarz' Kritik der empirischen Willenspsychologie.' [S. objects that on E's theory the difference between an actual and a merely possible state of feeling is treated as an operative factor in mental process. E. replies that this is a misunderstanding, and illustrates by reference to water falling down a height and always tending to a lower level, though its descent is not determined by the difference in height between the point from which it falls and that to which it descends. In answer to other

points urged by S., it is maintained that strength of will is not the intensity of an actual state of consciousness, and also that aversion is not essentially distinct from desire, being only a desire for the non-existence of something.] **E. Posch.** 'Ausgangsspunkte zu einer Theorie der Zeitvorstellung.' [Duration is nothing but existence considered in reference to time. Two ways in which the conception of duration arises. Measurement is an essential constituent of this concept. What is really meant by the irreversibility of the Past. The spatial setting of our representation of time relations. The discussion of this point is especially valuable.] **Paul Barth.** 'Fragen der Geschichtswissenshaft.' [Besides descriptive history, which can never be reduced to a scheme of causal uniformities, there must also be a conceptual treatment of history which aims at formulating such a scheme and finds its basis in the results of scientific psychology.] Besprechungen.

Archiv für Systematische Philosophie. Band v., Heft 3. **B. Tschitscherin.** 'Raum und Zeit' (Schluss). [An outline sketch of a system of ontology which we do not venture to reproduce in a brief abstract.] **L. Goldschmidt.** 'Kant's Voraussetzungen und Prof. Dr. Fr. Paulsen. [A sharp attack on Paulsen's exposition of Kant. It is maintained that Kant's main aim is to deny the possibility of metaphysical knowledge as contrasted with practical faith, and to show that the conditions which make knowledge possible in natural science are wanting in metaphysical speculation. Kant does not aim at justifying the validity of mathematical and natural science; he assumes this validity.] **Heinrich Grünbaum.** 'Zur Kritik der Modernen Causalanschauungen.' [Gives a systematic classification of various views of the causal relation by reference to three questions: (1) What is the essential characteristic of the relation expressed in the causal judgment? (2) How far and in what sense are such judgments logically valid? (3) What is the methodological value of the category of causation? and what modifications does it require for scientific purposes? Discussion of the views of Riehl, Sigwart and Wundt.] **H. Kleinpeter.** 'Ueber den Begriff der Erfahrung. Ein Nachtrag.' **J. Baumann.** 'Ist Mach von mir missverstanden worden?' Zeitschriften, etc.

Philosophisches Jahrbuch. Bd. xi., Heft 4. **C. Gutberlet.** 'Der Psychophysische Parallelismus.' [The writer does not deny the parallelism of mental and bodily acts, but he maintains that they proceed from the substantial union of the soul with the body, against other theories from that of Spinoza to that of Külpe. He discusses at length Jodl's views on the subject. The idea of mental and extra mental phenomena being two different aspects of the same reality is untenable; for who is there to see those aspects and distinguish between them? But Jodl goes farther and identifies them absolutely. If so, both matter, thought of apart from mind, and mind thought of apart from matter, would be mere abstractions, which is not the case.] **N. Kaufmann.** 'Die Methode des Mechanischen Monismus.' [The mechanical theory of Monism, though as old as Empedocles, claims to be the only possible means of reconciling religion with science, by means of a world-soul, or God, residing in each atom, and giving it force and movement. But it denies God's personality, and therefore amounts to Atheism; also human freedom and the immortality of the soul, by an unproved and unprovable hypothesis. It is to this hypothesis, not to the laws of science, that religion is opposed. Note that there is a theistical theory of Monism which, admitting God's immanence, also affirms His transcendency: this would not come into conflict with religion.] **N. v. Seeland.** 'Zur Frage son dem Wesen des Raumes.' [The two theories of

space (setting aside Kant's, the third) either, with most physicists, gives it a real existence, or, with the majority of philosophers, makes it a mere abstraction. The writer, in this, the first of two articles, tries to solve the question in the latter sense, pointing out the difference between extension and intrinsic coexistence of qualities ; the latter, if taken away in part, profoundly modify the being from which they are taken.]

PFLÜGER'S ARCHIV F. D. GES. PHYSIOLOGIE. Bd. lxvi., Heft 3 und 4. **F. Hoffmann** und **R. Bunzel.** 'Untersuchungen ueber den elektrischen Geschmack.' **T. H. Van de Velde.** 'Ueber willkuerliche Vermehrung der Pulsfrequenz beim Menschen.' Heft 7 und 8. **Guillery.** 'Zur Physiologie des Netzhautcentrums.' Heft 9 und 10. **J. Loeb.** 'Zur Theorie der physiologischen Licht und Schwerkraftwirkungen.' Bd. lxvii., Heft 1 und 2. **W. W. Norman.** 'Duerfen wir aus den Reaktionen niederer Thiere auf das Vorhandensein von Schmerzempfindungen schliessen?' Heft 5 und 6. **A. Bickel** und **J. R. Ewald.** 'Ueber den Einfluss der sensibelen Nerven und der Labyrinthe auf die Bewegungen der Thiere.' Heft 11 und 12. **T. Beer.** 'Die Akkommodation des Kephalopodenauges.' Bd. lxviii., Heft 1 und 2. **F. Schenck.** 'Ueber intermittirende Netzhautreizung.' **H. Griesbach.** 'Ein neues Aesthesiometer.' **S. Garten.** 'Beitraege zur Kenntniss des Zeitlichen Ablaufs der Pupillarreaktion nach Verdunklung.' Heft 3 und 4. **Guillery.** 'Ueber die Empfindungskreise der Netzhaut.' Heft 10, 11 und 12. **J. Breuer.** 'Ueber Bogengaenge und Raumsinn.' Bd. lxix., Heft 3 und 4. **W. A. Nagel.** 'Notiz betreffend den Lichtsinn augenloser Thiere.' Heft 7 und 8. **M. von Vintschgau** und **A. Durig.** 'Zeitmessende Versuche ueber die Unterscheidung zweier elektrischer Hautreize.' Heft 11 und 12. **T. Beer.** 'Die Akkommodation des Auges bei den Reptilien. **E. Barth.** 'Beitrag zur Taubstummforschung.' Bd. lxx., Heft 1 und 2. **O. Zoth.** 'Eine neue Methode zur Mischung objectiv dargestellter Spektralfarben.' **A. Bethe.** 'Duerfen wir den Ameisen und Bienen psychische Qualitaeten zuschreiben?' Heft 7 und 8. **A. Tschermak.** 'Ueber die Bedeutung der Lichtstaerke und des Zustandes des Sehorganes fuer farblose optische Gleichungen.' Heft 9 und 10. **Guillery.** 'Messende Untersuchungen ueber den Lichtsinn bei Dunkel- und Hell-adaptation.' **J. Breuer** und **A. Kreidl.** 'Ueber die scheinbare Drehung des Gesichtsfeldes waehrend der Wirkung einer Centrifugalkraft.' Bd. lxxi., Heft 1 und 2. **W. Einthoven.** 'Eine einfache physiologische Erklaerung fuer verschiedene optische Taeuschungen.' **E. von Cyon.** 'Die Functionen des Ohrlabyrinths.' Heft 3 und 4. **C. Hess** und **E. Hering.** 'Untersuchungen an total Farbenblinden.' Heft 9 und 10. **F. Melde.** 'Ueber einen neuesten A. Appunnschen Hoerpruefungsapparat.' Heft 11 und 12. **Guillery.** 'Ueber intermittirende Netzhautreizung bei bewegtem Auge.' Bd. lxxii., Heft 7 und 8. **S. Bloom** und **S. Garten.** 'Vergleichende Untersuchung der Sehschaerfe des hell- und des dunkel-adaptirten Auges.' Bd. lxxiii., Heft 1 und 2. **T. Beer.** 'Vergleichend-physiologische Studien zur Statocysten-function.' **Guillery.** 'Ueber die Schnelligkeit der Augenbewegungen.' Heft 3 und 4. **S. Exner.** 'Studien auf dem Grenzgebiete des localisirten Sehens.'

RIVISTA ITALIANA DI FILOSOFIA. September-October. **Prof. Carlo Cantoni.** 'Lettera del Prof. Carlo Cantoni al Prof. Attilio Gnesotto. [Prof. Cantoni's reply to criticisms of his treatment of sensation in his *Corso Elementare di Filosofia.*] **N. Fornelli.** 'Dopo la Morte del Comte —Littrè ed. i Comtisti.' [In connexion with the centenary of the birth of Comte last year (1898), the writer offers an appreciation of the present position of Positivism. Here the question arises as to which thinkers are

"orthodox," and the position of Littrè is discussed. Following Antoine, the author of this paper designates him as a successor greater than his master. Littrè, though eclectic, was a more powerful thinker than Laffitte, the head of the orthodox branch of the school. It is interesting to learn that Comte has followers in Brazil and Chili, though perhaps some of the political events claimed as instances of the Positivist spirit in England, such, for instance, as protests against Mr. Gladstone's "Coercion Bill" of 1881, may be assigned to other causes. It is noteworthy that all such examples are of the nature of protests, which tends to show a want of constructive power.] **R. Bianchi.** 'Il Naturalismo e la Filosofia di Diderot.' [An appreciative account of Diderot's work as a thinker, in which an interesting passage is quoted from *Pensées sur l'Interpretation de la Nature* (*Liv. XII.*), anticipatory of modern evolution. In connexion with Diderot's share in the *Encyclopædia*—he contributed no less than 990 articles—the dates of most of the earlier works of the kind are mentioned.] **A. Bartolomei.** 'I Principi Fondamentali dell' Etica di Roberto Ardigò.' [This instalment discusses Ardigò's inconsistency in mentioning human autonomy when at the same time he holds man is determined by the social ideal. The former view is described as an "anthropocentric prejudice" leading to an atomic theory of society. In so far as Ardigò has been influenced by Spencer, it is contended that the norm of right conduct should not be derived from Biology, but rather from Sociology (*to be continued*).] Bibliografia. Bollentino, etc.

IX.—NOTES.

HEGEL'S EARLY STUDIES—A CORRECTION.

In the January number of MIND (No. 29) p. 12, note 1, I quoted from Rosenkranz's *Life of Hegel* a definition of logic, written down by him in a note-book while he was a schoolboy at the Gymnasium: "*ein Inbegriff der Regeln des Denkens, abstrahirt aus der Geschichte der Menschheit*". This looks like a curious suggestion for his later attempt to find the logical categories writ large in the process of historical development. But it has been pointed out to me by Mr. J. B. Baillie, that Rosenkranz has probably misread or misprinted the extract, and that it ought to run: "*ein Inbegriff der Regeln des Denkens*"—*abstrahirt aus der* "*Geschichte der Menschheit*". A book called the *Geschichte der Menschheit* by Meiners was one of those Hegel was reading at the time (Rosenkranz, p. 14). It may seem odd that the boy should have thought it worth while to give the source of so commonplace a definition, but it is characteristic of Hegel's plodding conscientiousness: and it is certainly worth noting that the future philosopher should have come upon his first conception of Logic in a book on History. So, though I must give up a striking quotation, I retain a piece of evidence for the general thesis—that Hegel approached logic through the study of history, and not *vice versâ*.

D. G. RITCHIE.

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